# *QLview for Fibre*

## *Operations Guide*

*FC0051101-00 A*

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# *Section 1*
# Introduction

## *1.1* What is the QLogic Management Suite?

The QLogic Management Suite utilities configure and control Storage Area Networks (SANs). The suite is made up of two software utilities: QLconfig and QLview.

- ❑ QLconfig controls the configuration and availability of a SAN. Use this utility to configure storage resources and share storage resources efficiently.
- ❑ QLview provides configuration information, statistics, diagnostics, and alarm notification for a SAN. Use this utility to monitor both the QLA2xxx adapters and the attached storage devices. QLview data can be easily integrated into other network and system management software.

The QLogic Management Suite uses a Graphical User Interface (GUI). The QLA2xxx adapters being controlled are pictured, along with their attributes, making it easy to control the devices either locally or remotely. The QLogic Management Suite works with the following operating systems: Windows NT, Windows 2000, and Novell NetWare. Support of multiple operating systems allows control of heterogeneous environments.

## *1.2* What is QLview for Fibre?

QLview for Fibre is the utility component of the QLogic Management Suite for management and diagnostics; it monitors both the QLA2xxx adapters and the attached storage devices.

QLview is compliant with version 2.0 of the Desktop Management Interface (DMI), the industry standard for system management. Consequently, data from QLview can be easily integrated into other network and system management software.

QLview for Fibre ensures timely and accurate detection of I/O failures. It provides easy management and control, including performance statistics, of QLA2xxx adapters that are located locally or remotely.

Even a small one-host, one-adapter, one-disk system can benefit from the system monitoring and diagnostic features of QLview. With a SAN, QLview for Fibre becomes a vital administrative tool.

QLview for Fibre consists of the following components:

- **QLview for Fibre Application.** This is the GUI application that runs on any Windows NT system connected to the servers (Windows NT, Windows 2000, and NetWare) and manages the QLA2xxx adapters on those servers.
- **QLview for Fibre NT Agent.** This software is required on the Windows NT systems where the QLA2xxx adapters reside.
- **QLview for Fibre NetWare Agent.** This software is required on Novell NetWare systems where the QLA2xxx adapters reside. This software is installed from an NT client system connected to the Novell system.
- **Intel DMI Service Provider.** This software is required on Windows NT and Windows 2000 systems where the QLA2xxx adapters reside. This software is installed automatically if it is not present.

## *1.3* Features

The QLview for Fibre utility has the following features.

- **Asset Management.** QLview for Fibre automatically detects the QLA2xxx adapters installed in the system and provides the following details about each one:
  - Model and type
  - WorldWide Name (WWN)
  - Loop ID
  - Serial number
  - BIOS version
  - Firmware version
  - Driver version
- **Configuration Management.** QLview for Fibre provides the following configuration information:
  - A list of devices attached to each QLA2xxx adapter
  - The physical address map of the arbitrated loop (AL_PA map)
  - The QLA2xxx adapter NonVolatile RAM (NVRAM) settings
  - A mechanism to modify and update the NVRAM

- **Statistics.** QLview for Fibre provides complete statistics about the operation of the QLA2xxx adapter. Statistic collection can be automatic or manual. The statistic accumulators can be reset at any time. Statistic coverage includes:
  - Operation count
  - Operation rate in I/Os per second
  - Transfer rate or throughput in bytes per second
  - Loop Initialization Process (LIP) count
  - Error count

- **Diagnostics.** QLview for Fibre gives timely, accurate information on failing or failed operations. QLview for Fibre provides diagnostic data on the link status of the QLA2xxx adapter and the device to which it is attached.

  QLview for Fibre provides failure counts for:

  - Link failures
  - Sync loss
  - Signal loss
  - Count of invalid CRC

- **Alarm Notification.** QLview for Fibre gives asynchronous notification whenever an alarm condition occurs. Alarms are provided for such conditions as loop down and hardware failures. Alarm information includes the alarm type, the source of the occurrence, the time of the occurrence, and the type of error. When an alarm condition occurs, an entry is added to the event log and the QLview for Fibre program icon (located in the system tray) flashes.

# *Section 2*
# Requirements

## *2.1* Introduction

QLview for Fibre requires the hardware and software listed in this section for optimum performance.

## *2.2* Hardware Requirements

- ❑ QLogic Fibre Channel QLA2xxx adapters (see section 2.4)
- ❑ Single- or multi-processor server or workstation
- ❑ Pentium class 100 MHz, 64-MB RAM, minimum 20-MB disk space

## *2.3* Software Requirements

- ❑ Microsoft Windows NT 4.0 Server, Enterprise Server, or workstation with Service Pack 5 or later

  or

  Windows 2000 Server, Advanced Server, or Professional
- ❑ Novell NetWare 4.2, 5.x server (optional)
- ❑ QLogic QL2xxx miniport drivers, version 7.5.2 or later
- ❑ TCP/IP protocol for Windows NT and Windows 2000 remote management
- ❑ Internetwork Packet eXchange/Sequenced Packet eXchange (IPX/SPX) protocol for Novell NetWare 4.2, 5.x remote management

***NOTE:*** You must have administrative privileges to perform management functions.

## *2.4*
## Supported QLA2xxx Adapters

***NOTE:*** The following QLogic adapters are collectively referred to as the *QLA2xxx adapter* unless otherwise noted. QLview for Fibre supports the following QLA2xxx adapters:

- **QLA2100 family**
  FC0210403-01 (QLA2100/33)
  FC0210403-02 (QLA2100/66)
- **QLA2100F family**
  FC0310403-01 (QLA2100/33)
  FC0310403-02 (QLA2100/66)
- **QLA2102F family**
  FC0610402-01 (QLA2102F/33)
- **QLA2200 family** (64-bit PCI to Fibre Channel copper media):
  FC0210406-03 (ISP2200 chip)
  FC0210406-04 (ISP2200A/33 chip)
  FC0210406-05 (ISP2200A/66 chip)
- **QLA2200F family** (64-bit PCI to Fibre Channel optical media):
  FC0310406-03 (ISP2200 chip)
  FC0310406-04 (ISP2200A/33 chip)
  FC0310406-05 (ISP2200A/66 chip)
- **QLA2202F family** (64-bit PCI to dual channel optical media):
  FC0610403-04 (ISP2200A/33 chip)
  FC0610403-05 (ISP2200A/66 chip)
- **QLA2200G family** (64-bit PCI to Fibre Channel GigaBit Interface Converter [GBIC]) with ISP2200A/66 chip:
  FC3010402-01 (QLA2200G/66; without GBIC)
  FC3010402-01(QLA2200GC/66, with GBIC copper)
  FC3010402-01 (QLA2200GF/66; with GBIC optical)
- **QLA2200L family** (64-bit, low-profile PCI to Fibre Channel copper media):
  FC0210408-XX (ISP2200A/66 chip)

***NOTE:*** In the chip and adapter names, /33 indicates 33 MHz; /66 indicates 66 MHz.

# *Section 3*
# Installing QLview for Fibre

## *3.1* Introduction

You can install QLview for Fibre by downloading the software from the QLogic web site or by using the QLogic Management Suite (QMS) CD-ROM. After you download the software or insert the CD-ROM, follow the steps listed in section 3.4 to complete the installation.

## *3.2* Installation Options

QLview for Fibre supports both stand-alone and networked configurations. Install the software appropriate for your configuration (see table 3-1):

***Table 3-1. Configuration Option Installation Requirements***

| Configuration | Software Requirements |
|---|---|
| Stand-alone | |
| This system will monitor QLA2xxx adapters locally. | QLview for Fibre Application and QLview for Fibre NT/2000 Agent |
| Networked | |
| This system will monitor QLA2xxx adapters locally and on remote systems on the same network. | QLview for Fibre Application and QLview for Fibre NT/2000 Agent |
| This system will monitor QLA2xxx adapters only on remote systems on the same network. | QLview for Fibre Application |
| The QLA2xxx adapters on this Windows NT/Windows 2000 system will be remotely monitored only from other systems on the same network. | QLview for Fibre NT/2000 Agent |
| The QLA2xxx adapters on the NetWare server will be remotely monitored only from other systems on the same network. | QLview for Fibre NetWare Agent |

## *3.3* NetWare Installation Prerequisites

Make sure the following components are present on the locations listed below before you install the QLview NetWare Agent:

- ❑ On the Windows NT/2000 Client:
  - ❑ NetWare Client software (from Novell)
  - ❑ Network protocols:

    NWLink IPX/SPX-compatible transport
    NWLink NetBios
  - ❑ Drive letter mapped to the root of the SYS Volume of the NetWare server. By default, the NetWare Client maps to sys\system or sys\public; however, you must set the root of SYS Volume by assigning a drive letter to sys:\.

  ***NOTE:*** You must be logged on as an administrator.
- ❑ On the NetWare Server:
  - ❑ NetWare 5.x server with support pack NW5SP4
    or
    NetWare 4.2 server with support pack NW4SP8a
  - ❑ QL2200.HAM version 5.40s or later
  - ❑ QL2100.HAM version 5.40s or later

## *3.4*
## Installation Instructions

QLview for Fibre Setup is a self-extracting program that installs the QLview for Fibre application and related software.

***NOTE:*** QLview for Fibre always overwrites the previous version of QLview for Fibre.

The following steps take you through the installation process:

1. Start the setup process. Do one of the following:

   ❑ If you have downloaded QLview for Fibre from the Internet, locate the QLview for Fibre folder, then double-click the **QLview for Fibre Setup** icon (see figure 3-1):

***Figure 3-1. QLview for Fibre Setup Icon***

   ❑ If you are installing QLview for Fibre from a CD-ROM, start the setup process by clicking **QLview** on the CD-ROM home page.

   The *Unpacking QLview for Fibre Setup* dialog displays as the installation process begins (see figure 3-2):

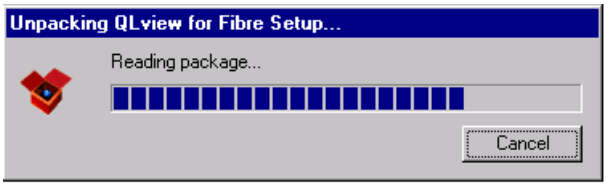


***Figure 3-2. Unpacking QLview for Fibre Setup Dialog***

If the temporary files from a previous installation of QLview have not been deleted by the operating system, the *Overwrite Protection* dialog displays (see figure 3-3):

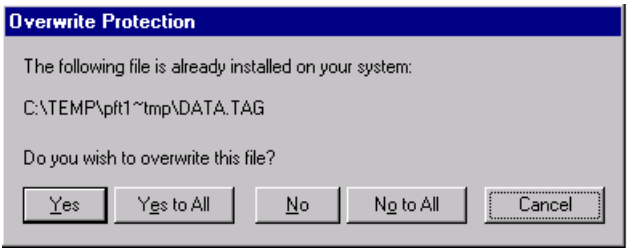


***Figure 3-3. Overwrite Protection Dialog***

Do the following:

a. Click **Cancel** to abort the installation.

b. Go to the \TEMP directory and delete the pft1~tmp folder.

c. Restart the QLview for Fibre installation.

2. The *Information* window displays (see figure 3-4):

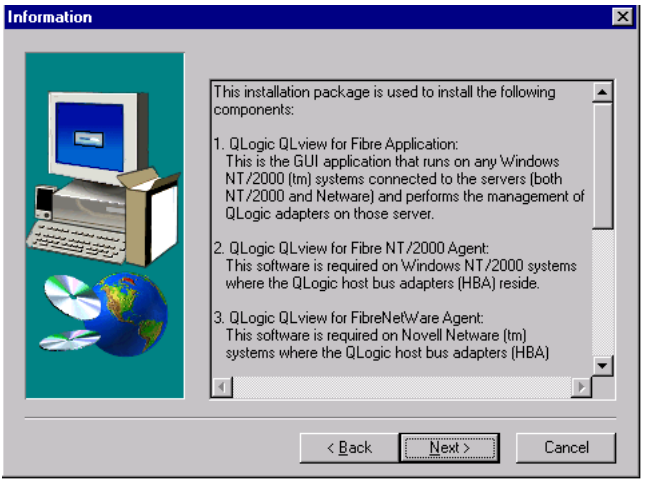
Information
This installation package is used to install the following components:
1. QLogic QLview for Fibre Application:
This is the GUI application that runs on any Windows NT/2000 (tm) systems connected to the servers (both NT/2000 and Netware) and performs the management of QLogic adapters on those server.
2. QLogic QLview for Fibre NT/2000 Agent:
This software is required on Windows NT/2000 systems where the QLogic host bus adapters (HBA) reside.
3. QLogic QLview for FibreNetWare Agent:
This software is required on Novell Netware (tm) systems where the QLogic host bus adapters (HBA)
< Back
Next >
Cancel

***Figure 3-4. Information Window***

Read the information, then click **Next**.

3. The *Software License Agreement* window displays (see figure 3-5):

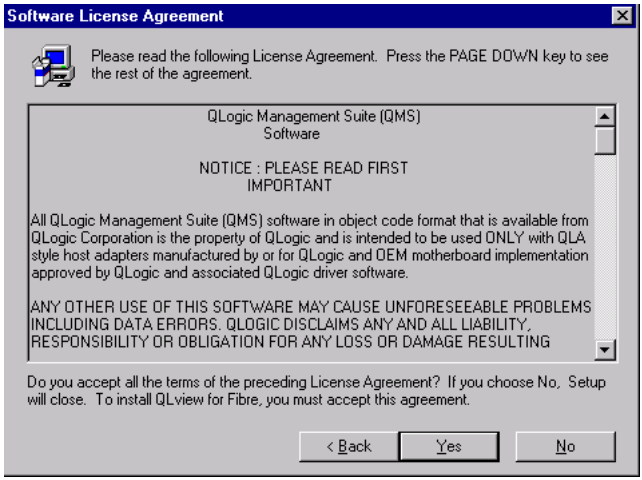
Software License Agreement
Please read the following License Agreement. Press the PAGE DOWN key to see the rest of the agreement.
QLogic Management Suite (QMS) Software
NOTICE : PLEASE READ FIRST IMPORTANT
All QLogic Management Suite (QMS) software in object code format that is available from QLogic Corporation is the property of QLogic and is intended to be used ONLY with QLA style host adapters manufactured by or for QLogic and OEM motherboard implementation approved by QLogic and associated QLogic driver software.
ANY OTHER USE OF THIS SOFTWARE MAY CAUSE UNFORESEEABLE PROBLEMS INCLUDING DATA ERRORS. QLOGIC DISCLAIMS ANY AND ALL LIABILITY, RESPONSIBILITY OR OBLIGATION FOR ANY LOSS OR DAMAGE RESULTING
Do you accept all the terms of the preceding License Agreement? If you choose No, Setup will close. To install QLview for Fibre, you must accept this agreement.
< Back
Yes
No

***Figure 3-5. Software License Agreement Window***

Read the agreement, then click **Yes**.

4. The *Choose Destination Location* window displays (see figure 3-6):

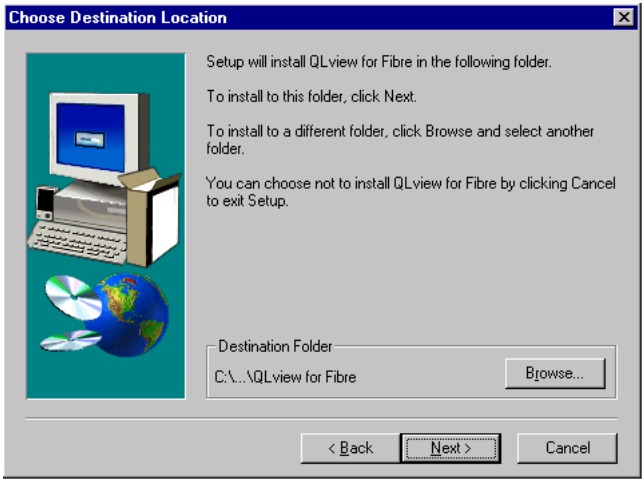
Choose Destination Location
Setup will install QLview for Fibre in the following folder.
To install to this folder, click Next.
To install to a different folder, click Browse and select another folder.
You can choose not to install QLview for Fibre by clicking Cancel to exit Setup.
Destination Folder
C:\...\QLview for Fibre
Browse...
< Back
Next >
Cancel

***Figure 3-6. Choose Destination Location Window***

Do one of the following:

- ❑ To select the destination location displayed in the window, click **Next** (recommended).

  or

- ❑ To select a different location:

  a. Click **Browse**. The *Choose Folder* dialog displays (see figure 3-7):

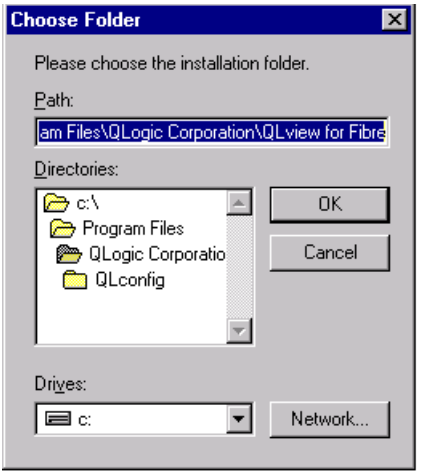


***Figure 3-7. Choose Folder Dialog***

  b. Select the desired location, then click **OK**.

  c. The *Choose Destination Location* window redisplays. Click **Next**.

5. The *Select Components* window displays (see figure 3-8):

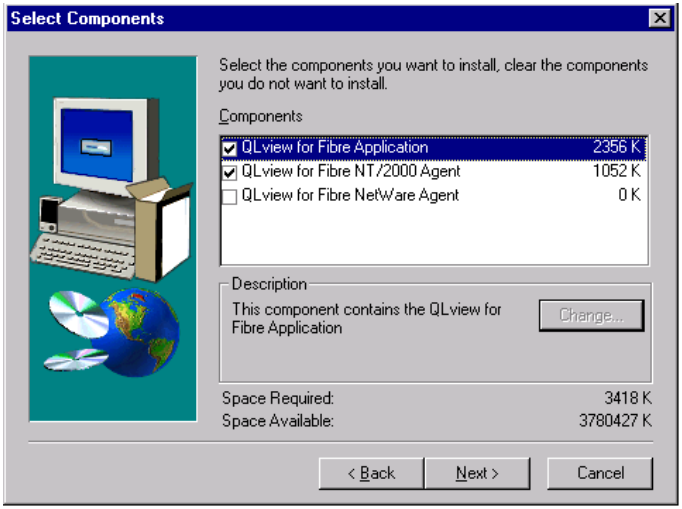
Select Components
Select the components you want to install, clear the components you do not want to install.
Components
QLview for Fibre Application 2356 K
QLview for Fibre NT/2000 Agent 1052 K
QLview for Fibre NetWare Agent 0 K
Description
This component contains the QLview for Fibre Application
Change...
Space Required: 3418 K
Space Available: 3780427 K
< Back
Next >
Cancel

***Figure 3-8. Select Components Window***

a. Do the following:

- ❑ Select **QLview for Fibre Application** and **QLview for Fibre NT/2000 Agent** (the default options) if the system will monitor QLA2xxx adapters on a stand-alone system.
- ❑ Select **QLview for Fibre Application** and **QLview for Fibre NT/2000 Agent** (the default options) if the system will monitor QLA2xxx adapters on this system and remote systems on the same network.
- ❑ Select **QLview for Fibre Application** (a default option) if the system will monitor QLA2xxx adapters only on remote systems on the same network.
- ❑ Select **QLview for Fibre NT/2000 Agent** (a default option) if the QLA2xxx adapters on this Windows NT/Windows 2000 system will be remotely monitored only from other systems on the same network.
- ❑ Select **QLview for Fibre NetWare Agent** if the QLA2xxx adapters on a NetWare server will be remotely monitored only from other systems on the same network.

b. Click **Next**.

6. If a previous version of Intel Desktop Management Interface (DMI) 2.0 Service Provider (SP) exists on the system, the *Installing DMI SP 2.0 for Windows* dialog displays (see figure 3-9):

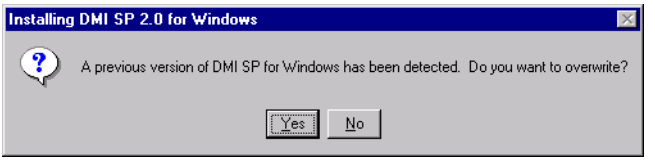
Installing DMI SP 2.0 for Windows
A previous version of DMI SP for Windows has been detected. Do you want to overwrite?
Yes
No

***Figure 3-9. Installing DMI SP 2.0 for Windows Dialog***

Do one of the following:

- ❑ To overwrite the previous version, click **Yes**.
- ❑ To use the previous version, click **No** (recommended) and proceed with step 15.

7. The Intel DMI 2.0 SP installer is automatically invoked when no other service provider is installed on your system or if you chose to overwrite the previous version in step 6. The DMI SP coordinates activities between management applications and component software, including installing components, serializing and synchronizing requests, and controlling the general flow of system operations.

   All of the QLview for Fibre files for the local system are copied before the Intel DMI 2.0 SP installer is launched. (The QLview for Fibre always overwrites the previous version of the software.)

   The *Setup* dialog tracks the preparation of the InstallShield Wizard (see figure 3-10):

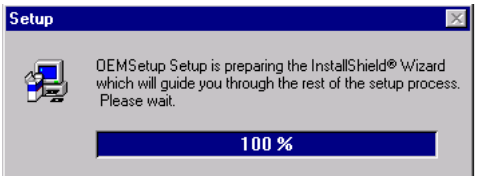
Setup
OEMSetup Setup is preparing the InstallShield® Wizard which will guide you through the rest of the setup process. Please wait.
100 %

***Figure 3-10. InstallShield Setup Dialog***

The *Intel DMI 2.0 Service Provider (SP) SDK Version 1.10 Installation* window displays (see figure 3-11):

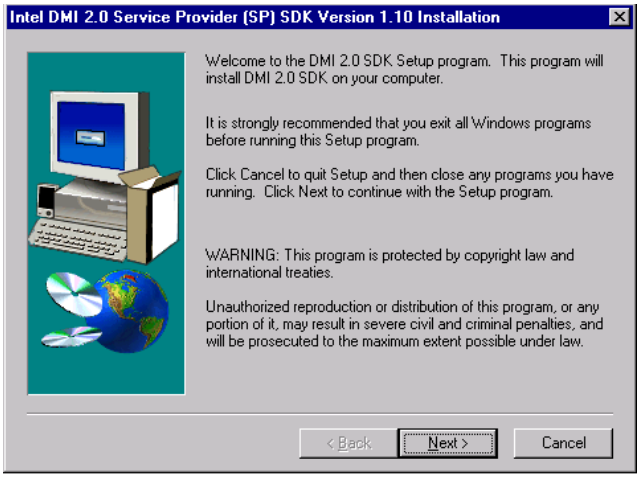
Intel DMI 2.0 Service Provider (SP) SDK Version 1.10 Installation
Welcome to the DMI 2.0 SDK Setup program. This program will install DMI 2.0 SDK on your computer.
It is strongly recommended that you exit all Windows programs before running this Setup program.
Click Cancel to quit Setup and then close any programs you have running. Click Next to continue with the Setup program.
WARNING: This program is protected by copyright law and international treaties.
Unauthorized reproduction or distribution of this program, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under law.
< Back
Next >
Cancel

***Figure 3-11. Intel DMI 2.0 Service Provider Installation Window***

To invoke DMI SP installation, read the instructions, then click **Next**.

8. The *Software License Agreement* window displays (see figure 3-12):

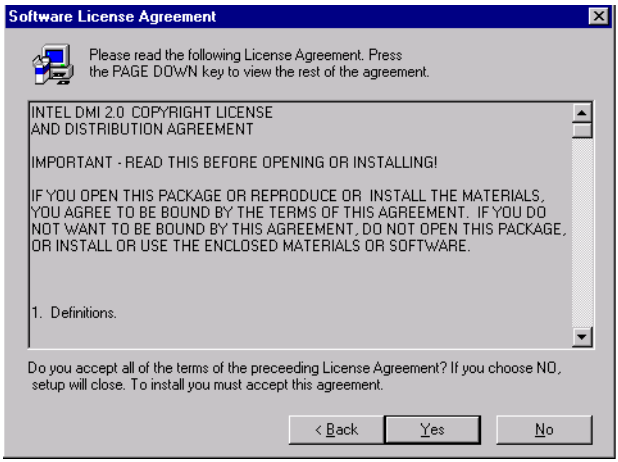
Software License Agreement
Please read the following License Agreement. Press the PAGE DOWN key to view the rest of the agreement.
INTEL DMI 2.0 COPYRIGHT LICENSE
AND DISTRIBUTION AGREEMENT
IMPORTANT - READ THIS BEFORE OPENING OR INSTALLING!
IF YOU OPEN THIS PACKAGE OR REPRODUCE OR INSTALL THE MATERIALS, YOU AGREE TO BE BOUND BY THE TERMS OF THIS AGREEMENT. IF YOU DO NOT WANT TO BE BOUND BY THIS AGREEMENT, DO NOT OPEN THIS PACKAGE, OR INSTALL OR USE THE ENCLOSED MATERIALS OR SOFTWARE.
1. Definitions.
Do you accept all of the terms of the preceeding License Agreement? If you choose NO, setup will close. To install you must accept this agreement.
< Back
Yes
No

***Figure 3-12. Intel DMI 2.0 Software License Agreement Window***

Read the agreement, then click **Yes**.

9. If a previous version of Intel DMI 2.0 SP exists on the system, the following information message displays (see figure 3-13):

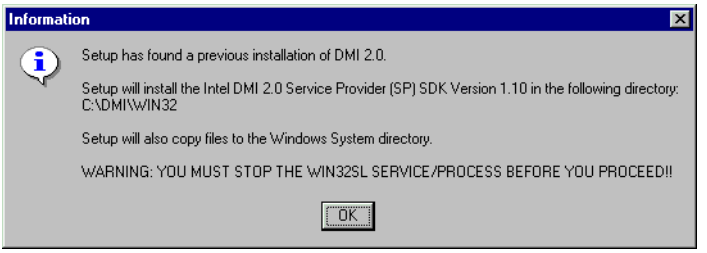
Information
Setup has found a previous installation of DMI 2.0.
Setup will install the Intel DMI 2.0 Service Provider (SP) SDK Version 1.10 in the following directory:
C:\DMI\WIN32
Setup will also copy files to the Windows System directory.
WARNING: YOU MUST STOP THE WIN32SL SERVICE/PROCESS BEFORE YOU PROCEED!!
OK

***Figure 3-13. Intel DMI 2.0 Previously Installed Information Message***

Click **OK**.

10. The *Installation Components Selection* window displays (see figure 3-14):

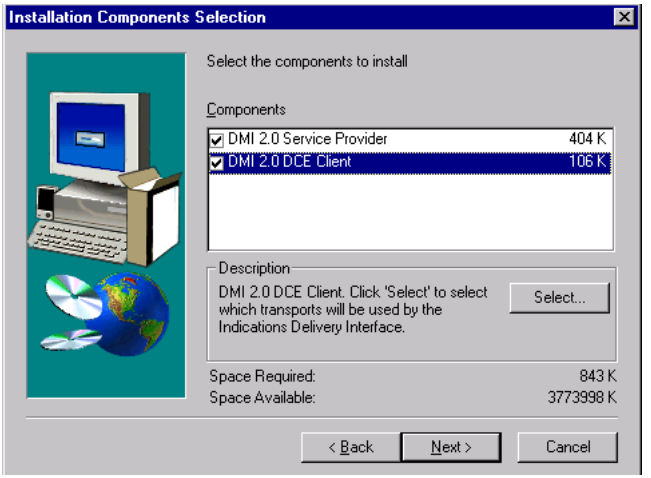
Installation Components Selection
Select the components to install
Components
DMI 2.0 Service Provider 404 K
DMI 2.0 DCE Client 106 K
Description
DMI 2.0 DCE Client. Click 'Select' to select which transports will be used by the Indications Delivery Interface.
Select...
Space Required: 843 K
Space Available: 3773998 K
< Back
Next >
Cancel

***Figure 3-14. Intel DMI 2.0 Installation Components Selection Window***

In the Components field, select **DMI 2.0 Service Provider** and **DMI 2.0 DCE Client**.

***NOTE:*** You must select both of these components.

Click **Select** to specify the transport sub-components for the Intel DMI 2.0 Client.

11. The *Select Sub-components* dialog displays (see figure 3-15):

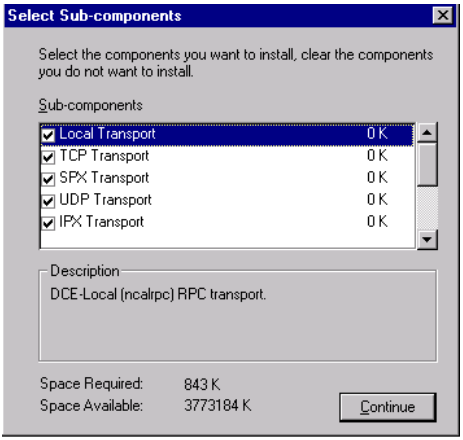
Select Sub-components
Select the components you want to install, clear the components you do not want to install.
Sub-components
Local Transport 0 K
TCP Transport 0 K
SPX Transport 0 K
UDP Transport 0 K
IPX Transport 0 K
Description
DCE-Local (ncalrpc) RPC transport.
Space Required: 843 K
Space Available: 3773184 K
Continue

***Figure 3-15. Intel DMI 2.0 Select Sub-components Dialog***

Select the transports you wish to install or deselect the transports you do not wish to install, then click **Continue**.

All of the transports are selected by default. You must select the transport types specific to your system configuration, as shown in table 3-2:

***Table 3-2. System Configuration Transport Requirements***

| Configuration | Required Transport Type |
|---|---|
| Local machine access | Select **Local Transport**. |
| Windows NT/2000 | Select **TCP Transport**. |
| NetWare 4.2/5.x | Select **SPX Transport** and **IPX Transport**. |

**UDP Transport** is optional in all configurations.

12. The *Installation Components Selection* window redisplays (see figure 3-14). Click **Next**.

13. The *Select Program Folder* window displays (see figure 3-16):

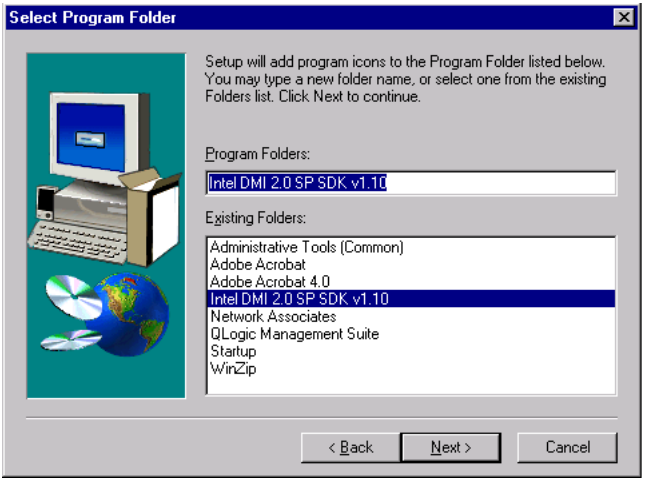
Select Program Folder
Setup will add program icons to the Program Folder listed below. You may type a new folder name, or select one from the existing Folders list. Click Next to continue.
Program Folders:
Intel DMI 2.0 SP SDK v1.10
Existing Folders:
Administrative Tools (Common)
Adobe Acrobat
Adobe Acrobat 4.0
Intel DMI 2.0 SP SDK v1.10
Network Associates
QLogic Management Suite
Startup
WinZip
< Back
Next >
Cancel

***Figure 3-16. Intel DMI 2.0 Select Program Folder Window***

a. Do one of the following:

- ❑ Select a folder from the Existing Folders field (recommended).

  or

- ❑ In the Program Folders field, type the name of the folder to which you wish the program icons added.

b. Click **Next**.

The *Copying Program Files* dialog tracks the copying process (see figure 3-17):

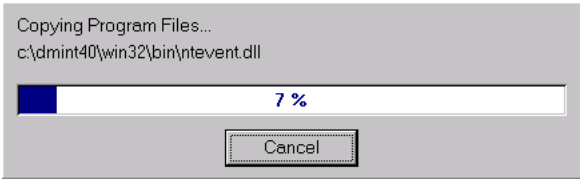


***Figure 3-17. Intel DMI 2.0 Copying Program Files Dialog***

14. When the Intel DMI files have finished copying on your system, the following information message displays (see figure 3-18):

***Figure 3-18. Intel DMI 2.0 Files Finished Coping Information Message***

Click **OK**.

15. If there is no QLview for Fibre shortcut on your desktop, the QLview for Fibre *Adding Shortcut* dialog displays (see figure 3-19):

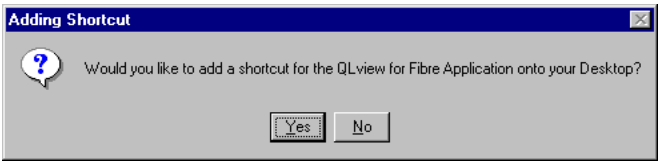


***Figure 3-19. QLview for Fibre Adding Shortcut Dialog***

Click **Yes** to create a shortcut to QLview for Fibre on your desktop. The **QLview for Fibre** icon displays on your desktop (see figure 3-20):

***Figure 3-20. QLview for Fibre Desktop Icon***

16. If you selected **QLview for Fibre NetWare Agent** in the *Select Components* window (step 5), the *Choose Destination Location* window displays for NetWare-specific information (see figure 3-21):

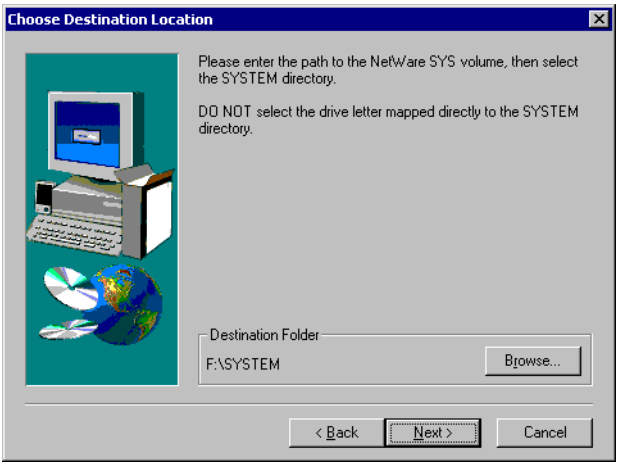
Choose Destination Location
Please enter the path to the NetWare SYS volume, then select the SYSTEM directory.
DO NOT select the drive letter mapped directly to the SYSTEM directory.
Destination Folder
F:\SYSTEM
Browse...
< Back
Next >
Cancel

***Figure 3-21. Choose Destination Location Window for SYS Volume***

The installer automatically selects the appropriate drive letter and directory of the first NetWare server found in the Windows drive letter mapping. Do one of the following:

- ❑ Click **Next** to select the destination folder that displays.

  or

- ❑ Select a different destination folder. Do the following:

  a. Click **Browse**. The *Choose Folder* dialog displays (see figure 3-22):

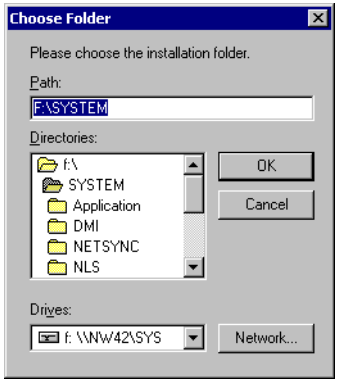


***Figure 3-22. Choose Folder Dialog for SYS Volume***

  b. Specify the drive letter mapped to the root of the SYS Volume, then select the system directory (see section 3.3). The Destination Folder should display *<NetWare mapped drive>:\system*.

  c. Click **OK**.

  d. The *Choose Destination Location* window redisplays. Click **Next**.

If you did not specify the root of the SYS Volume, the following error dialog displays (see figure 3-23). If this error dialog does not display, proceed with step 17.

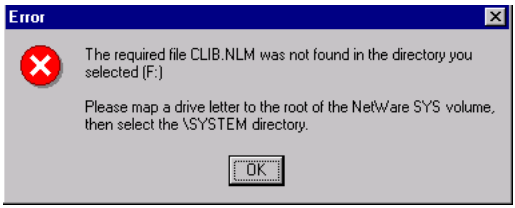
Error
The required file CLIB.NLM was not found in the directory you selected (F:)
Please map a drive letter to the root of the NetWare SYS volume, then select the \SYSTEM directory.
OK

***Figure 3-23. NetWare SYS Volume Error Dialog***

Click **OK**, the *Choose Destination Location* window redisplays. Do one of the following:

- ❑ To specify the root of SYS Volume and install the NetWare Agent, follow steps a through d.

  or

- ❑ To not install the NetWare Agent, click **Back**. The following question displays:

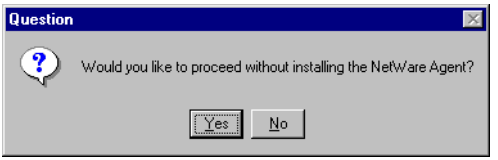


***Figure 3-24. NetWare Agent Not Install Question***

Click **Yes** to proceed with the installation without installing the NetWare Agent.

Click **No** to return to the *Choose Destination Location* window.

17. The QLview for Fibre *Setup Complete* dialog displays (see figure 3-25):

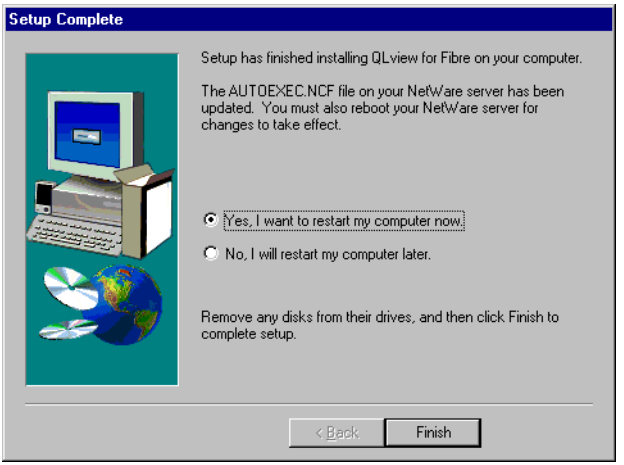
Setup Complete
Setup has finished installing QLview for Fibre on your computer.
The AUTOEXEC.NCF file on your NetWare server has been updated. You must also reboot your NetWare server for changes to take effect.
Yes, I want to restart my computer now.
No, I will restart my computer later.
Remove any disks from their drives, and then click Finish to complete setup.
< Back
Finish

***Figure 3-25. QLview for Fibre Setup Complete Dialog***

Do one of the following:

- ❑ Select **Yes** to restart the computer now. Click **Finish**.

  or

- ❑ Select **No** to restart the computer later. Click **Finish**.

18. If you are using a system configuration that includes a NetWare server, do one of the following at the NetWare server:

    - ❑ Reboot

      or

    - ❑ Enter the following commands at the NetWare command prompt:

      ```
      RPCSTART.NCF
      LOAD NWSL -r
      LOAD NWDMI2
      LOAD NWCDMI
      LOAD ONCSP
      LOAD QLFvagnt
      ```

QLview for Fibre is now ready for you to use. Refer to section 4 for descriptions of the main windows and section 5 for instructions on setting up and using QLview for Fibre.

# *Section 4*
# QLview for Fibre Windows

## *4.1*
## Introduction

This section describes the menu options and features of the main QLview for Fibre windows. Refer to section 5 for instructions on performing monitoring and diagnostic tasks using these and other QLview for Fibre windows and dialogs.

***NOTE:*** Whenever a QLview for Fibre window displays, you can press **F1** to view the online help section for that particular window.

## *4.2*
## Main Window

When you open QLview for Fibre and make at least one connection to a machine, the main window displays (see figure 4-1):

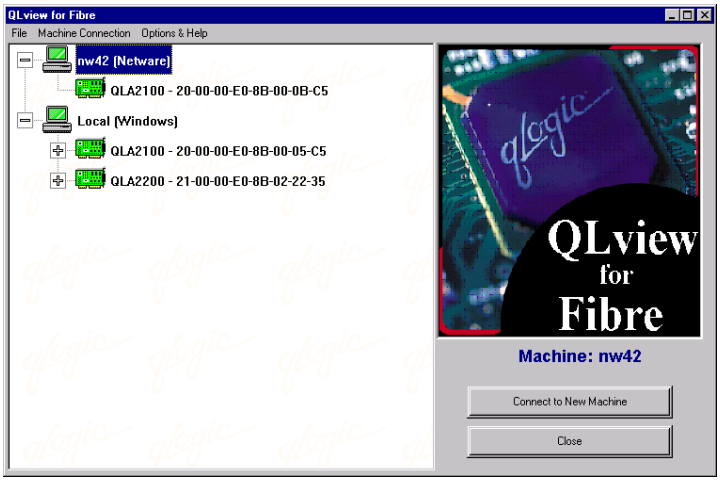


***Figure 4-1. QLview for Fibre Main Window***

You activate functions and operations from the main window with menu options, component-specific menus, and buttons.

The QLview for Fibre main window consists of three sections:

- A map of all connected machines, adapters, and target devices on the left side of the window
- The main menu options on the top part of the window
- A graphic with QLogic logo, the name of the currently selected machine, and two buttons on the right side of the window

### *4.2.1* Mapping Tree

The left side of the main window displays the map of the connected machines, QLA2xxx adapters, and target devices. The machine mapping tree displays each machine connected to QLview for Fibre. The + icon next to the machine tells you that there are QLA2xxx adapters connected to it.

#### *4.2.1.1* Viewing Machines

To select a machine, double-click on the machine name or click on the + icon next to the machine name. The right side of the main window displays information about that machine and the buttons you can use to operate it (see figure 4-2):

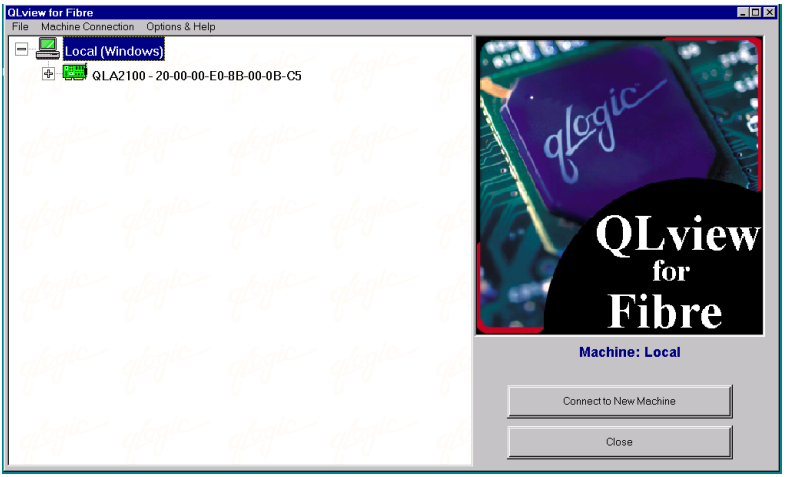


***Figure 4-2. Main Window with Machine Information***

If you select a machine, the following buttons display on the right side of the main window:

- **Connect to New Machine.** Click this button to access the Set Up New Connection window (see section 5.4). This button performs the same function as the **Machine Connection>>Connect to New Machine** menu option and the **New Connection** menu option in the **QLview for Fibre** system tray icon (in the bottom right-hand corner of your desktop).
- **Close.** Click this button to close the QLview for Fibre main window.

#### *4.2.1.2*
## Viewing Adapters

To select a QLA2xxx adapter on a machine, expand the machine's QLA2xxx adapter list by double-clicking on the machine name or clicking on the + icon next to the machine name. The right side of the main window displays information about that adapter and the buttons you can use to operate it (see figure 4-3):

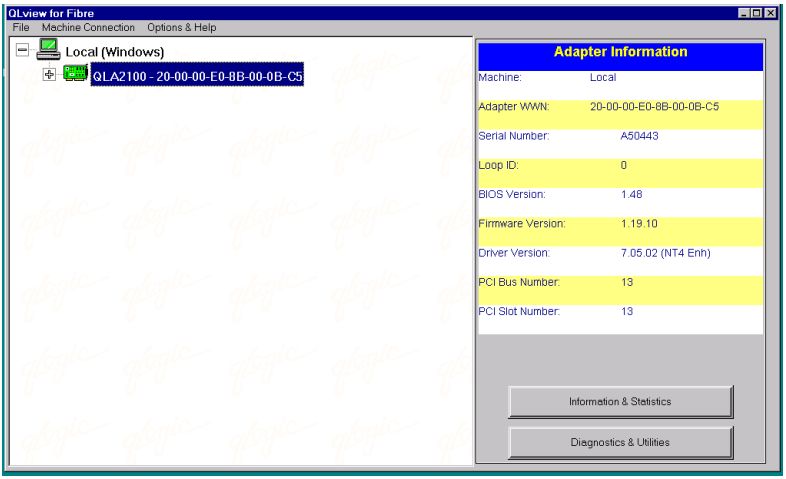


***Figure 4-3. Main Window with QLA2xxx Adapter Information***

If you select a QLA2xxx adapter, the following buttons display:

- **Information & Statistics.** Click this button to access the *General Information & Statistics* window, which consists of three pages: *General Information*, *Statistics*, and *Port Database*.
- **Diagnostics & Utilities.** Click this button to access the *Diagnostics & Utilities* dialog, which consists of three pages: *Link Status*, *NVRAM Settings*, and *Diagnostics & Utilities*.

A yellow adapter icon with a red X through it indicates that the adapter cannot communicate with any devices or that it has no connected devices (see figure 4-4):

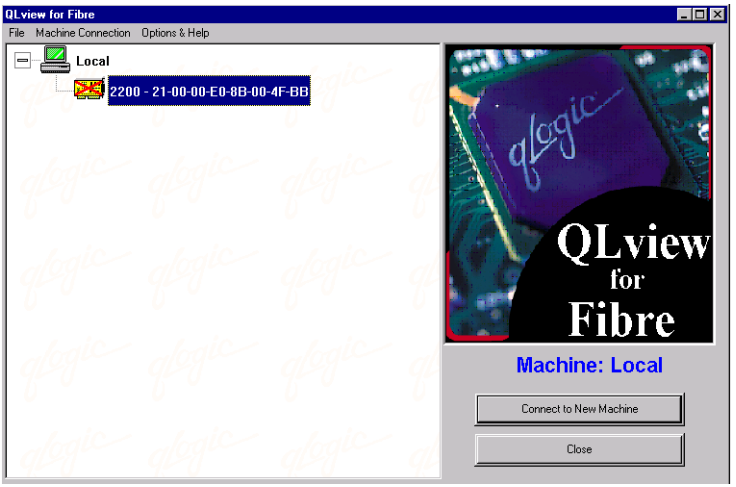


***Figure 4-4. QLA2xxx Adapter Without Connected Devices***

### *4.2.1.3* QLA2xxx Adapter Naming Conventions

The QLA2xxx adapter's name consists of two parts: its type and WorldWide Name (WWN), in hexadecimal. For example, the QLA2xxx adapter's name: QLA2100-20-00-00-E0-8B-6D-8F-21 indicates that it is a model QLA2100 adapter whose WWN is 20-00-00-E0-8B-6D-8F-21.

The target device's names consist of the manufacturer's name, the path, and the target. The path is the same for all target devices of a given QLA2xxx adapter; the targets are different. For example, the names for target devices SEAGATE Path 0-Target 3 and SEAGATE Path 0-Target 4 indicate that they are both manufactured by Seagate, are connected to the same QLA2xxx adapter (Path 0), and are targets 3 and 4 for the specified QLA2xxx adapter.

#### *4.2.1.4*
## Viewing Target Devices

To select a target device of a QLA2xxx adapter, expand the QLA2xxx adapter list by double-clicking on the adapter name or clicking on the + icon next to the QLA2xxx adapter name. Then click on the target device to display information about it in the right side of the main window (see figure 4-5):

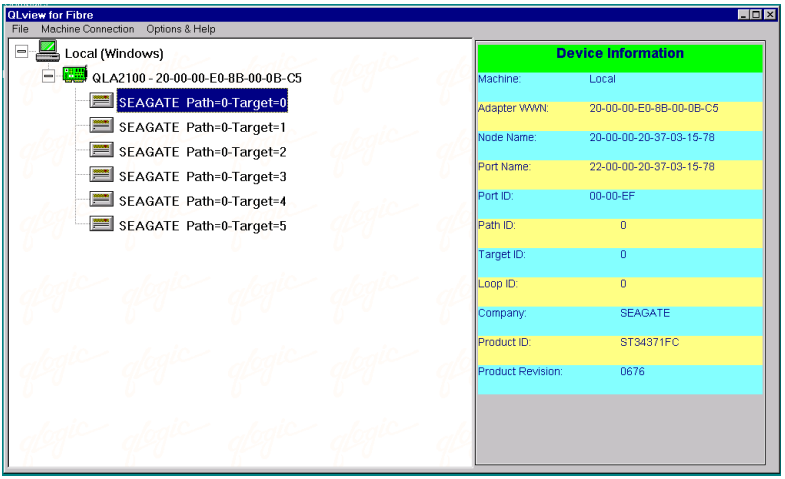


***Figure 4-5. Main Window with Target Device Information***

#### *4.2.2*
## Menu Options

The QLview for Fibre main window contains three menus: **File**, **Machine Connection**, and **Options & Help**.

#### *4.2.2.1*
## File Menu

This menu contains the following options:

- **Alarm Acknowledgment**. Select this option to display the *Alarm Acknowledgment* window, which you use to acknowledge and clear out alarms.
- **Event Log**. Select this option to display the *Event Log* window, which contains all the alarms and events from the adapters.
- **Close**. Select this option to close the main window.

#### *4.2.2.2*
### Machine Connection Menu

This menu contains the following options:

- **Connect to New Machine**. Select this option to display the *Set Up New Connection* window, which you use to set up a new DMI connection to a machine.
- **Disconnect from Selected Machine**. Select this option to disconnect from a machine. This option terminates the DMI connection between QLview for Fibre and the selected machine. It also removes the machine from the list of active machines. You might want to disconnect a machine to manage a different one or when the current machine has a problem that stops DMI communication.

#### *4.2.2.3*
### Options & Help

This menu contains the following options:

- **Options**. Select this option to display the *QLview Configuration* window, which you use to set up several options for the application.
- **Help Topics**. Select this option to display the help file.
- **About QLogic QLview for Fibre**. Select this option to display the *About QLview for Fibre Channel* dialog.

#### *4.2.3*
### Component Menus

When you right-click on a machine or QLA2xxx adapter in the machine mapping tree, a menu displays the functions that you can perform on that component.

#### *4.2.3.1*
### Machine Menu

Right-click on a machine in the machine mapping tree to display a menu which contains the **Disconnect from Machine** option. You can also select **Machine Connection>>Disconnect from Selected Machine** from the QLview for Fibre main window.

Select this option to disconnect from a machine. This option terminates the DMI connection between QLview for Fibre and the machine. It also removes the machine from the list of active machines. You might want to disconnect a machine to manage a different one or when the current machine has a problem that stops DMI communication.

### *4.2.3.2*
### Adapter Menu

Right-click on an adapter in the machine mapping tree to display the following menu options:

- **Adapter's Information & Statistics**. Select this menu option to access the *General Information & Statistics* window, which consists of three pages: *General Information*, *Statistics*, and *Port Database*.
- **Adapter's Diagnostics & Utilities**. Select this menu option to access the *Diagnostics & Utilities* dialog, which consists of three pages: *Link Status*, *NVRAM Settings*, and *Diagnostics & Utilities*.

## *4.3*
## Alarm Acknowledgment Window

The *Acknowledge Alarm* window displays when you select **File>>Alarm Acknowledgment** from the QLview for Fibre main window (see figure 4-6):

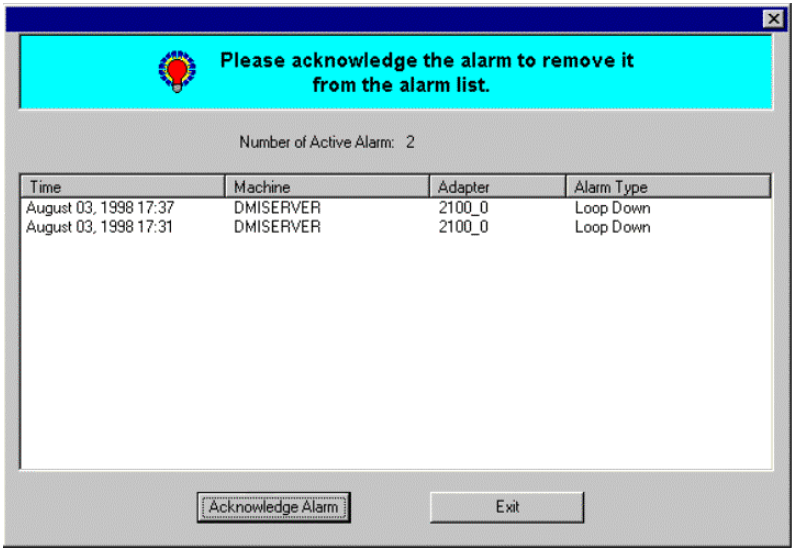


***Figure 4-6. Alarm Acknowledgment Window***

When you establish a DMI connection, QLview for Fibre continuously monitors the connected machine for alarms and indications. When an alarm condition, such as a loop down, is reported, the **QLview for Fibre** system tray icon (located at the bottom right hand corner of your desktop) flashes. The flashing icon indicates that there is at least one active alarm in the application that you need to acknowledge. Alarms are displayed in the order that they occurred, with the most recent alarm at the top of the list. Each alarm in the alarm list includes the following information:

- Time: The date and time when the alarm was reported.
- Machine: The name of the machine where the alarm originated.
- Adapter: The name of the adapter where the alarm occurred.
- Alarm Type: The kind of alarm that occurred.

First you highlight the active alarms on the list, then click **Acknowledge Alarm**. After all the alarms are acknowledged, the icon stops flashing and returns to its normal state.

## *4.4* Events Log

The *Events Log* displays when you select **File>>Event Log** from the QLview for Fibre main window (see figure 4-7):

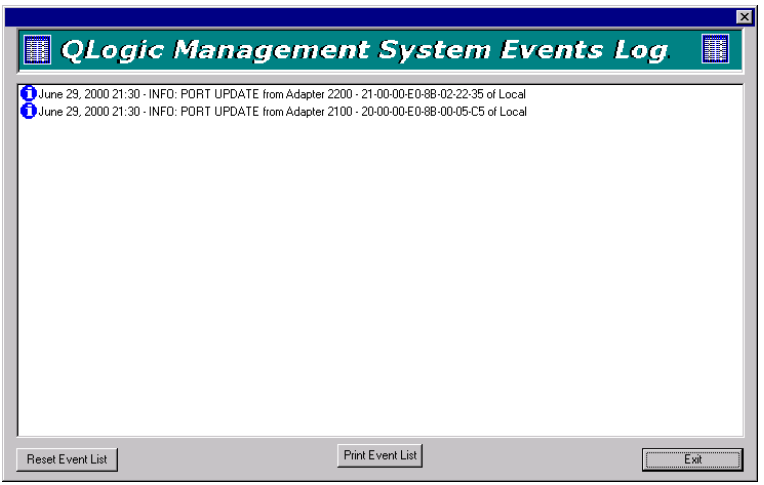
QLogic Management System Events Log
June 29, 2000 21:30 - INFO: PORT UPDATE from Adapter 2200 - 21-00-00-E0-8B-02-22-35 of Local
June 29, 2000 21:30 - INFO: PORT UPDATE from Adapter 2100 - 20-00-00-E0-8B-00-05-C5 of Local
Reset Event List
Print Event List
Exit

***Figure 4-7. Events Log***

QLview for Fibre maintains a log file to keep track of all alarms, warnings, and informational messages from connected systems.

You can specify the number of events to list in this log in the *Options* window (see section 5.5.4). An icon beside each event identifies the type of event:

- ❑ Alarm event (see figure 4-8):

***Figure 4-8. Events Log Alarm Icon***

- ❑ Warning event (see figure 4-9):

***Figure 4-9. Events Log Warning Icon***

- ❑ Information event (see figure 4-10):

***Figure 4-10. Events Log Information Icon***

The *Events Log* lists the following information about each alarm:

- ❑ Time: The date and time when the alarm was reported.
- ❑ Machine: The name of the machine where the alarm originated.
- ❑ Adapter: The name of the adapter where the alarm occurred.
- ❑ Alarm Type: A brief explanation of the alarm.

You can scroll through the list vertically if the list of alarms does not fit on the window. Alarms display in the order that they occur, from newest to oldest.

You can print the event log by clicking **Print Event List** or clear the list by clicking **Reset Event List**.

## *4.5*
## Set Up New Connection

The *Set Up New Connection* window displays when you select **Machine Connection>>Connect to Machine** from the QLview for Fibre main window (see figure 4-11):

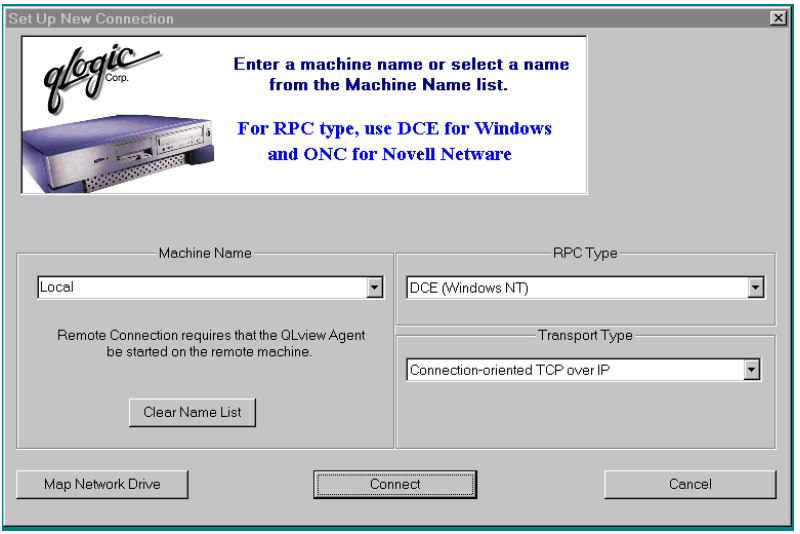
Set Up New Connection
qlogic Corp.
Enter a machine name or select a name from the Machine Name list.
For RPC type, use DCE for Windows and ONC for Novell Netware
Machine Name
Local
RPC Type
DCE (Windows NT)
Remote Connection requires that the QLview Agent be started on the remote machine.
Transport Type
Connection-oriented TCP over IP
Clear Name List
Map Network Drive
Connect
Cancel

***Figure 4-11. Set Up New Connection Window***

Use this window to enter the name of the system to which you want to connect and the transport type used for the connection. This window also contains the **Map Network Drive** button, which lists the names of all computers currently on the network to assist you in finding the names of the machines.

### *4.5.1*
## Set Up Options

The *Set Up New Connection* window contains the following options:

- Machine Name. This field provides a drop-down menu of the available machines to which you can connect or accepts the name of the machine that you type in the field. After you establish the DMI connection, QLview for Fibre saves this remote machine's name in the drop-down menu.
- RPC Type. This field provides a drop-down menu of available Remote Procedure Call (RPC) types.
- Transport Type. This field provides a drop-down menu of available transport types for the DMI connection. Transport types are normally used for Windows environments.

### *4.5.2*
## Set Up New Connection Buttons

The *Set Up New Connection* window contains the following buttons:

- **Map Network Drive**. This button helps you find the machine names. When you click this button, it launches the Windows *Map Network Drive* dialog, which maps a logical drive to a machine on the network. It displays the names of all the connectable machines and the domains to which the machines belong.
- **Clear Name List**. This button deletes all the machines on the list except Local.
- **Connect**. This button connects the machine you specify in this window.
- **Cancel**. This button closes the *Set Up New Connection* window without making any changes to the existing setup.

## *4.6*
## Options Window

The *Option* window displays when you select **Options & Help>>Options** from the QLview for Fibre main window (see figure 4-12):

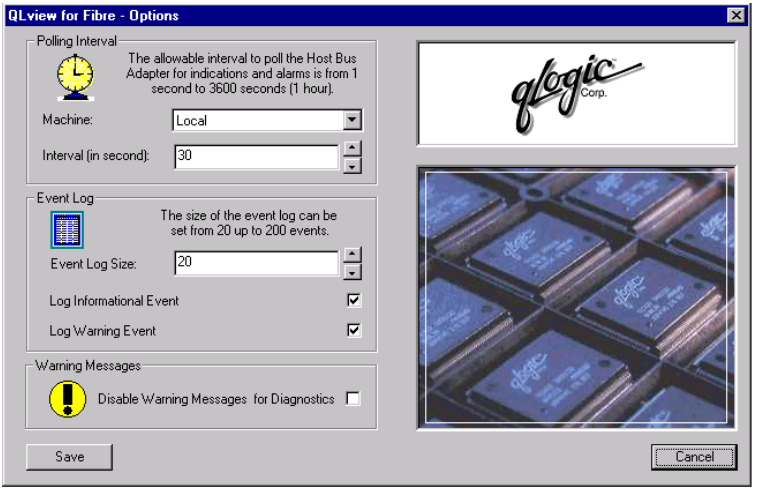


***Figure 4-12. Options Window***

You can configure the following features from the *Options* window. See section 5 for instructions on specifying these options.

- Polling Interval. This is the interval that QLview for Fibre polls connected machines for alarms and indications.
- Event Log. This enables you to specify the number of events kept in the log file and whether QLview for Fibre logs informational and warning events.

  ***NOTE:*** You cannot disable the logging of alarms.

- Warning Messages. You can disable the display of warning messages for diagnostics.

This window also displays a Machine Name drop-down menu for reference only; the polling interval always applies to the machine that you have currently selected in the main window.

## *4.7* About Dialog

The *About* dialog displays when you select **Options & Help>>About QLogic QLview for Fibre** from the QLview for Fibre main window (see figure 4-13):

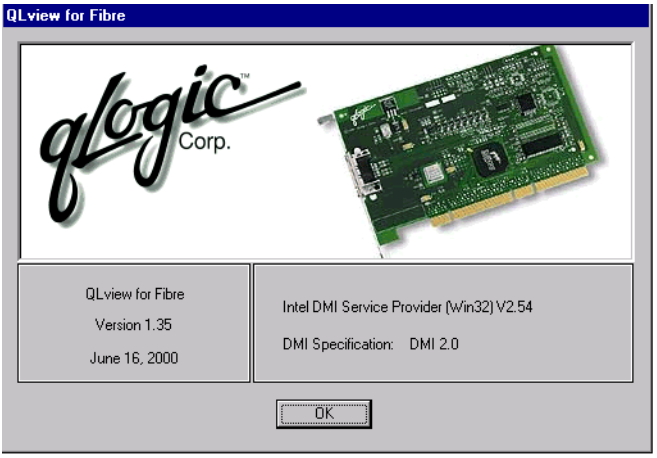


***Figure 4-13. About Dialog***

This dialog displays the QLview for Fibre version number and release date, as well as the following information about the Intel DMI Service Provider when at least one DMI connection is established:

- The version number of the Service Provider.
- The version number of the DMI specification that this Service Provider supports.

## *4.8*
## Information and Statistics Window

The *Information & Statistics* window displays when you do one of the following:

- Right-click on a QLA2xxx adapter in the machine mapping tree on the QLview for Fibre main window, then select **Adapter's Information & Statistics** from the adapter's menu.

  or

- Click on a QLA2xxx adapter in the machine mapping tree QLview for Fibre on the QLview for Fibre main window, then click **Information & Statistics** on the right side of the main window.

The *Adapter's Information & Statistics* window displays the *General Information* page (see figure 4-14):

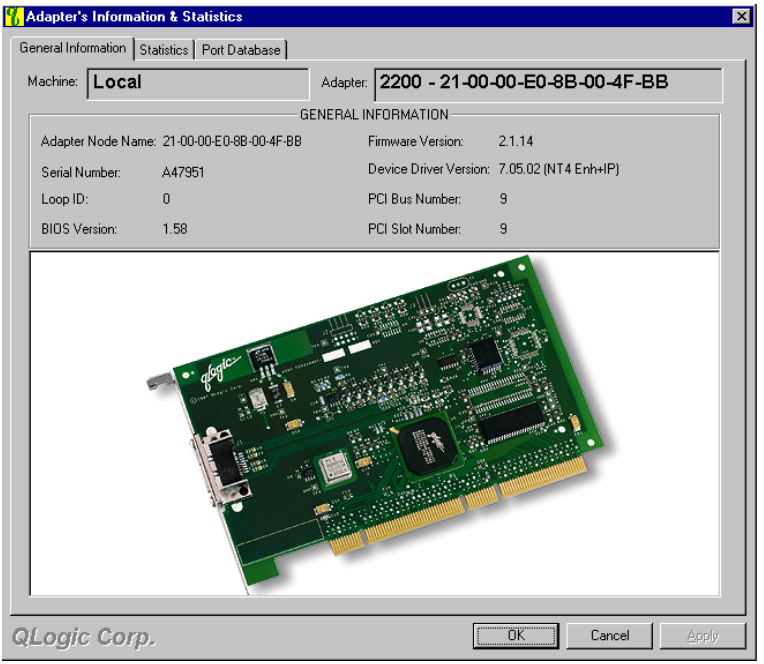


***Figure 4-14. General Information Page***

The *Information & Statistics* window contains three pages:

- *General Information*
- *Statistics*
- *Port Database*

These pages display both static and dynamic information about the QLA2xxx adapter. Each page displays the name of the currently selected machine and QLA2xxx adapter.

### *4.8.1* General Information Page

This page (see figure 4-14) displays the following QLA2xxx adapter information:

- Adapter WorldWide Name (WWN). The node name of the QLA2xxx adapter.
- Serial Number. The serial number of the QLA2xxx adapter.
- Loop ID. The loop ID of the QLA2xxx adapter.
- BIOS Version of the QLA2xxx adapter.
- Firmware Version. The version number of the QLA2xxx adapter's firmware.
- Device Driver Version. The version number of the QLA2xxx adapter's device driver.

### *4.8.2*
## Statistics Page

The *Statistics* page is shown in figure 4-15:

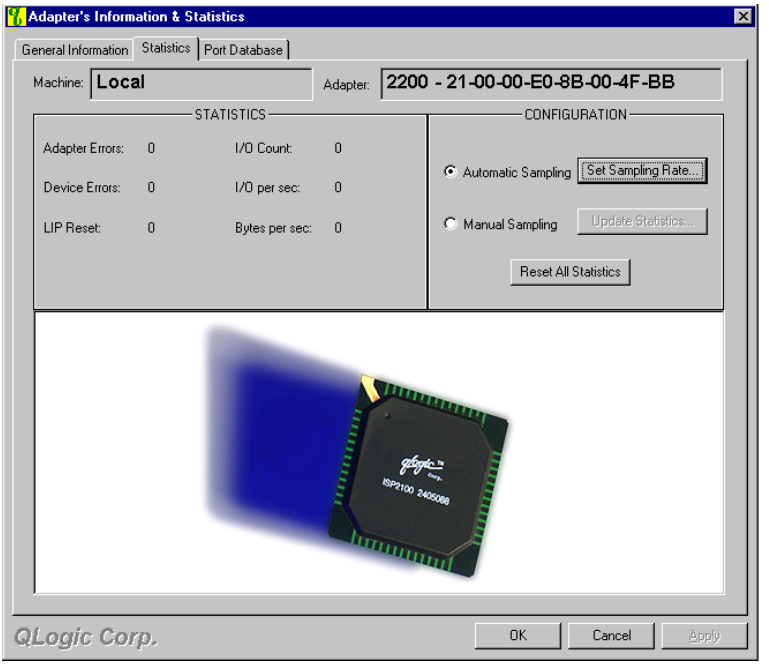


***Figure 4-15. Statistics Page***

This page displays the following statistical data about the QLA2xxx adapter:

- ❑ Adapter Errors. This is the number of errors reported by the QLA2xxx adapter's driver.
- ❑ Device Errors. This is the number of device errors reported by the QLA2xxx adapter's driver when interfacing with a connected device.
- ❑ LIP reset. This is the number of Loop Initialization Process (LIP) resets reported by the QLA2xxx adapter's driver.
- ❑ I/O Count. This is the total number of I/Os reported by the QLA2xxx adapter's driver.
- ❑ I/O Per Second. This is the current number of I/Os per second.
- ❑ Bytes Per Second. This is the current number of bytes processed by the QLA2xxx adapter per second.

The configuration section in the right side of the page enables you to perform the following functions:

- ❑ Select the sampling mode: manual or automatic.
- ❑ Set the rate of sampling for automatic mode.
- ❑ Initiate a sampling in manual mode by clicking the **Update Statistics** button after you select manual mode.
- ❑ Reset all of the statistical data displayed in the window.

### *4.8.3*
## Port Database Page

This page displays information about the port database of the QLA2xxx adapter as it is retrieved from the device driver. The left side of the *Port Database* page displays the adapter's port database as it is retrieved from both the driver and the SCSI Inquiry command (see figure 4-16):

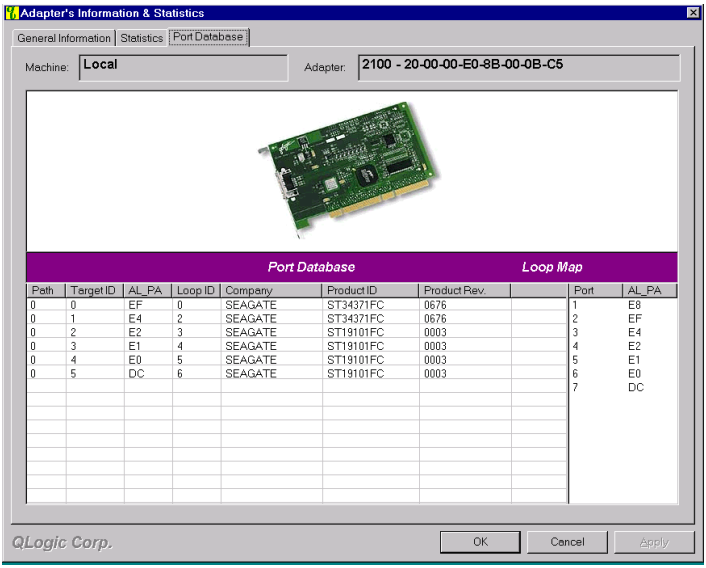


***Figure 4-16. Port Database Page***

The right side of the window displays the Arbitrated Loop_Physical Address (AL_PA) position map from the most recent LIP.

#### *4.8.3.1*
### Port Database Columns

The Port Database columns on the page display all of the drives attached to the QLA2xxx adapters and provide information about the drives. The following data is displayed for each drive:

- ❑ Path
- ❑ Target ID
- ❑ AL_PA
- ❑ Loop ID
- ❑ Company
- ❑ Product ID
- ❑ Product Revision

#### *4.8.3.2*
### Loop Map

The loop map consists of two columns. The first column is an ordered port list; the second is the device AL_PA. The right side of the loop map displays all of the AL_PAs, ordered in the same way as the electrical (not physical) connections between devices as established by the most recent LIP.

***NOTE:*** Loop map only applies to the local loop. If you use a Fibre Channel Switch, the loop map may show partial or no information.

## *4.9*
## Diagnostics and Utilities Window

The *Diagnostics and Utilities* window displays when you do one of the following:

- ❑ Right-click on a QLA2xxx adapter in the machine mapping tree on the QLview for Fibre main window, then select **Diagnostics and Utilities** from the adapter's menu.

  or

- ❑ Click on a QLA2xxx adapter in the machine mapping tree on the QLview for Fibre main window, then click on **Diagnostics and Utilities** on the right side of the main window.

The *Link Status* page displays when you open the window (see figure 4-17):

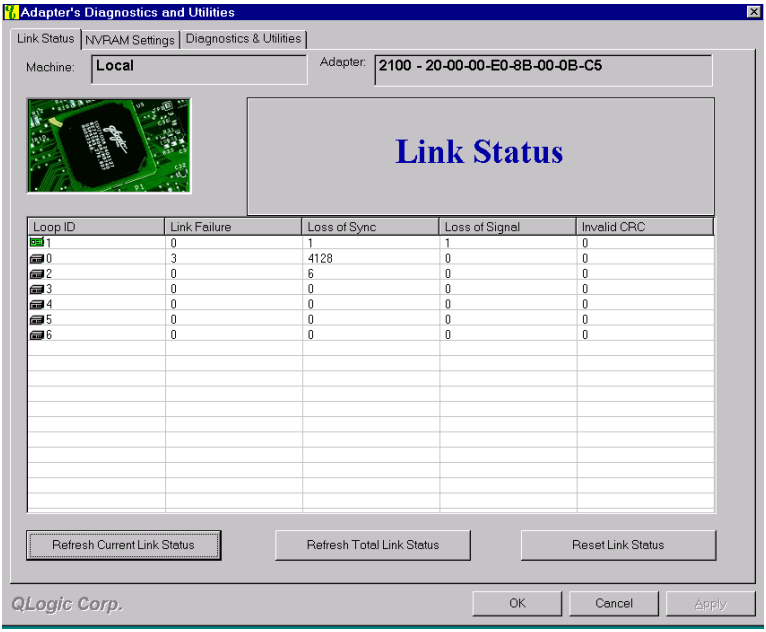


***Figure 4-17. Link Status Page***

The *Diagnostics and Utilities* window contains three pages:

- ❑ Link Status
- ❑ NVRAM Settings
- ❑ Diagnostics & Utilities

These pages enable you to do the following:

- ❑ View and modify the link status of the QLA2xxx adapter and attached devices.
- ❑ Update the adapter's NVRAM flash BIOS.
- ❑ Perform diagnostics on the adapter.

### *4.9.1*
## Link Status Page

When you select this page, QLview for Fibre retrieves the latest QLA2xxx adapter link status from the driver and displays the status for the QLA2xxx adapter and all attached devices. Click the **Link Status** tab on the *Adapter's Diagnostics and Utilities* window to display the *Link Status* page (see figure 4-17).

The first column of the link status list is the loop ID of the adapter and the attached drives. The adapter is identified by the following icon (see figure 4-18):

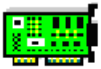

***Figure 4-18. Adapter Icon***

The drives are identified by the following icon (see figure 4-19):

***Figure 4-19. Drive Icon***

The next four columns display the following diagnostic information about the adapter or drives:

- ❑ Link Failure
- ❑ Loss of Sync
- ❑ Loss of Signal
- ❑ Invalid CRC

### *4.9.2*
## NVRAM Settings Page

Click the **NVRAM Settings** tab on the *Adapter's Diagnostics and Utilities* window to display the *NVRAM Settings* page (see figure 4-20):

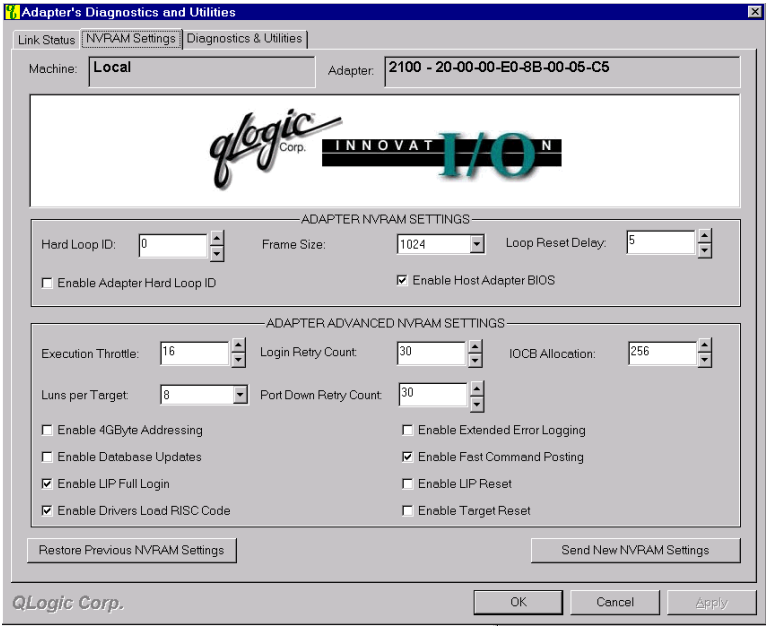


***Figure 4-20. NVRAM Settings Page***

This page displays the QLA2xxx adapter's parameters that are saved in its NonVolatile RAM (NVRAM), except for the extended firmware settings of the QLA2200 adapters.

***CAUTION!*** Changing NVRAM parameters incorrectly can cause serious damage to your system. If in doubt, always consult your systems expert before changing any NVRAM settings.

You can change these parameters on a Windows NT/2000 system under the following conditions:

- You select the **Enable NVRAM Parameters Update** option under QLview for Fibre Security (see section 5.2.5.1).
- You provide the correct password and it is authenticated by the QLview for Fibre Security Agent.

You can change these parameters on a NetWare system under the following conditions:

- You entered a password in the security application (see section 5.2.5.2).
- You provide the correct password and it is authenticated by QLview for Fibre.

The NVRAM parameters are divided into two groups: Adapter NVRAM Settings and Adapter Advanced NVRAM Settings. See section 5 for descriptions of these settings.

### *4.9.3*
## Diagnostics & Utilities Page

You use this page to update the QLA2xxx adapter flash BIOS from files and for performing loopback and read/write buffer diagnostics. Click the **Diagnostics & Utilities** tab on the *Adapter's Diagnostics and Utilities* window to display the *Diagnostics & Utilities* page (see figure 4-21):

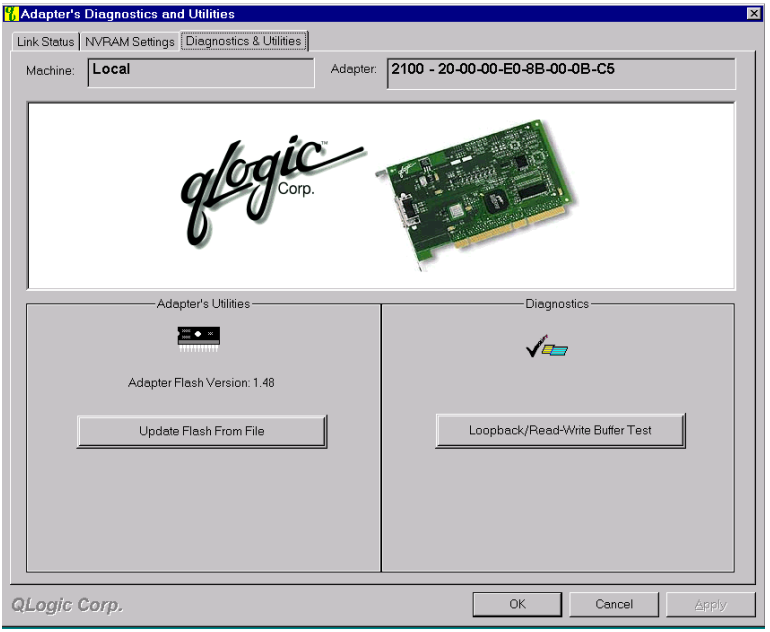


***Figure 4-21. Diagnostics & Utilities Page***

The *Diagnostics & Utilities* page has two buttons:

- **Update Flash From File**. Select this button to update the flash by entering the file name that contains the new flash BIOS. The new flash takes effect when you reboot your system.

  ***CAUTION!*** Changing flash BIOS settings incorrectly can cause serious damage to your system. If in doubt, always consult your systems expert before changing any flash BIOS settings.

  See section 5.8.1 for instructions on updating the flash BIOS from a file.

- **Loopback and Read/Write Buffer Test**. The loopback test is internal to the QLA2xxx adapter. It evaluates the fibre channel loop stability and error rate. The test transmits and receives (loopback) the specified data and checks for the frame Cyclic Redundancy Check (CRC), disparity, and length errors.

  The Read/Write Buffer test sends data through the SCSI Write Buffer command to a target device. It then reads the data back through the SCSI Read Buffer command and compares the data for errors. The test also compares the link status of the device before and after the Read/Write Buffer test. If errors occur, the test indicates a broken or unreliable link between the adapter and the device.

  See section 5.7.2 for instructions on performing these tests.

# *Section 5*
# Using QLview for Fibre

## *5.1* Introduction

QLview for Fibre monitors and manages a machine's QLA2xxx adapters and connected devices; and provides diagnostics, statistical data, and configuration information. This section provides instructions on using QLview for Fibre. For descriptions of the primary QLview for Fibre windows and dialogs, see section 4.

## *5.2* Getting Started with QLview for Fibre

QLview for Fibre enables you to customize the application, the agent, and the security software. After you install QLview for Fibre and set your initial security parameters, these components activate each time you start the application.

### *5.2.1* Starting the QLview for Fibre Application

To start the QLview for Fibre application, do one of the following:

- Double-click the **QLview for Fibre** icon on your desktop (if you have created one previously).

  or

- Select **Start>>Programs>>QLogic Management Suite>>QLview for Fibre>>QLview for Fibre Application**.

  or

- Select **Start>>Run**; then type in the name of QLview for Fibre (DMI_MA.EXE), including all the paths.

The *Set Up New Connection* window displays, along with the **QLview for Fibre** system tray icon in the bottom right-hand corner of your desktop (see figure 5-1):

***Figure 5-1. QLview for Fibre System Tray Icon***

This icon indicates that QLview for Fibre is active.

### *5.2.2* Opening the QLview for Fibre Main Window

When you start the QLview for Fibre application, the *Set Up New Connection* window displays automatically (see section 5.2.1). If you close the window, but do not terminate the session (see section 5.2.3), you can then reopen the main window by following these steps:

1. Right-click the **QLview for Fibre** icon in the system tray.
2. Select **QLview for Fibre Main Dialog** from the menu.

### *5.2.3* Terminating the QLview for Fibre Session

To terminate the QLview for Fibre session, follow these steps:

1. Right-click the **QLview for Fibre** system tray icon.
2. Select **Exit QLogic Fibre Channel QLview** from the menu.

The application disconnects from all of the connected machines and the icon disappears from the system tray.

***NOTE:*** This option is not available when the DMI Management Application main dialog is open.

### *5.2.4*
## Closing the QLview for Fibre Main Window

To close the QLview for Fibre main window, but keep the QLview for Fibre application monitoring activities operating, follow these steps:

1. Select **File>>Close**. This dialog displays (see figure 5-2):

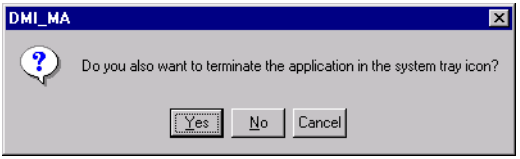


***Figure 5-2. Terminate Application Dialog***

2. Do one of the following:
   - ❑ Click **Yes** to terminate the QLview for Fibre application.

     or
   - ❑ Click **No** to close the main window but keep QLview for Fibre active.

     or
   - ❑ Click **Cancel** to leave the main window open.

### *5.2.5*
## Setting QLview for Fibre Security

QLview for Fibre security allows you to specify whether to enable the QLA2xxx adapter's NonVolatile RAM (NVRAM) and flash BIOS updates. The process differs for Windows NT/2000 and NetWare systems.

### *5.2.5.1*
## QLview for Fibre Security Windows NT/2000 Application

Use the QLview for Fibre Security application to enable or disable updating the QLA2xxx adapter's NVRAM settings or the flash BIOS. If you enable this option, you must provide a password to make updates.

***CAUTION!*** Changing NVRAM settings incorrectly can cause serious damage to your system. Use caution when granting access to this function.

System administrators and other authorized personnel can enable NVRAM parameter and flash BIOS updates by enabling the feature and requiring password authorization.

To set up this NVRAM and flash BIOS security feature, follow these steps:

1. Select **Start>>Programs>>QLogic Management Suite>>QLview for Fibre>>QLview for Fibre Security**.

   The *Security* window displays (see figure 5-3):

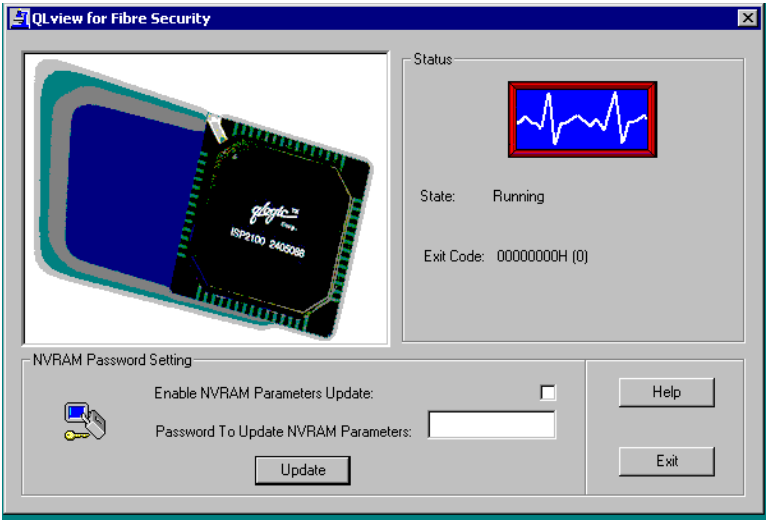


***Figure 5-3. Security Window***

2. Select **Enable NVRAM Parameters Update**.
3. Enter a password in the Password To Update NVRAM Parameters field.
4. Click **Update**.

### *5.2.5.2*
## QLview for Fibre Security NetWare Application

You must have administrator-level authority to run and change this application's setup. The security application allows you to enable or disable updates to NVRAM and the flash BIOS, and also configuration changes to the system's target devices and LUNs.

***NOTE:*** QLSEC.NLM is a shared utility between QLconfig and QLview. Changes you make using QLCSEC.NLM affect both programs.

To specify configuration changes, follow these steps:

1. Type UNLOAD QLFVAGNT at the NetWare command prompt to unload the QLFVAGNT.NLM.
2. Type LOAD QLCSEC at the NetWare command prompt.
3. In the *QLogic Agent Control* window, enter the password.
4. At the Enable remote QLA2xxx adapter configuration from client? prompt, enter **Y** to allow remote access or **N** to disable it.

   If you enter **N**, you will not be able to set up failover or any other QLconfig feature on your NetWare server.
5. Type LOAD QLFVAGNT at the NetWare command prompt to reload the QLFVAGNT.NLM.

### *5.2.6*
## Accessing the QLview for Fibre Agent

You select the QLview for Fibre Agent and application during installation. You can then check the Agent for errors or update it by selecting one of the following:

- ❑ Windows 2000: Select **Start>>Programs>>Administrative Tools>>Services**. The Windows 2000 *Services* window displays (see figure 5-4):

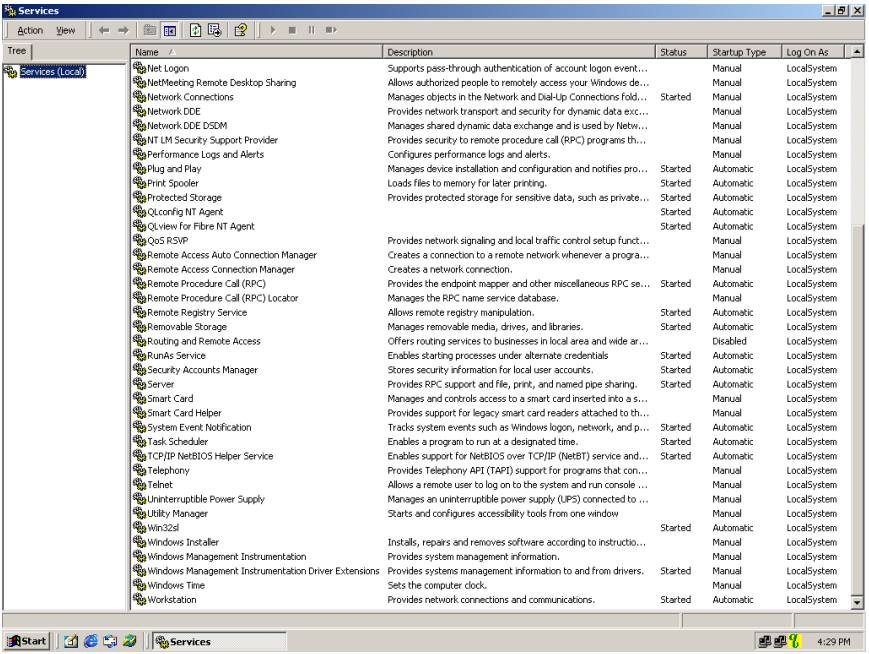
Services
Action View
Tree
Services (Local)
Name Description Status Startup Type Log On As
Net Logon Supports pass-through authentication of account logon event... Manual LocalSystem
NetMeeting Remote Desktop Sharing Allows authorized people to remotely access your Windows de... Manual LocalSystem
Network Connections Manages objects in the Network and Dial-Up Connections fold... Started Manual LocalSystem
Network DDE Provides network transport and security for dynamic data exc... Manual LocalSystem
Network DDE DSDM Manages shared dynamic data exchange and is used by Netw... Manual LocalSystem
NT LM Security Support Provider Provides security to remote procedure call (RPC) programs th... Manual LocalSystem
Performance Logs and Alerts Configures performance logs and alerts. Manual LocalSystem
Plug and Play Manages device installation and configuration and notifies pro... Started Automatic LocalSystem
Print Spooler Loads files to memory for later printing. Started Automatic LocalSystem
Protected Storage Provides protected storage for sensitive data, such as private... Started Automatic LocalSystem
QLconfig NT Agent Started Automatic LocalSystem
QLview for Fibre NT Agent Started Automatic LocalSystem
QoS RSVP Provides network signaling and local traffic control setup funct... Manual LocalSystem
Remote Access Auto Connection Manager Creates a connection to a remote network whenever a progra... Manual LocalSystem
Remote Access Connection Manager Creates a network connection. Manual LocalSystem
Remote Procedure Call (RPC) Provides the endpoint mapper and other miscellaneous RPC se... Started Automatic LocalSystem
Remote Procedure Call (RPC) Locator Manages the RPC name service database. Manual LocalSystem
Remote Registry Service Allows remote registry manipulation. Started Automatic LocalSystem
Removable Storage Manages removable media, drives, and libraries. Started Automatic LocalSystem
Routing and Remote Access Offers routing services to businesses in local area and wide ar... Disabled LocalSystem
RunAs Service Enables starting processes under alternate credentials Started Automatic LocalSystem
Security Accounts Manager Stores security information for local user accounts. Started Automatic LocalSystem
Server Provides RPC support and file, print, and named pipe sharing. Started Automatic LocalSystem
Smart Card Manages and controls access to a smart card inserted into a s... Manual LocalSystem
Smart Card Helper Provides support for legacy smart card readers attached to th... Manual LocalSystem
System Event Notification Tracks system events such as Windows logon, network, and p... Started Automatic LocalSystem
Task Scheduler Enables a program to run at a designated time. Started Automatic LocalSystem
TCP/IP NetBIOS Helper Service Enables support for NetBIOS over TCP/IP (NetBT) service and... Started Automatic LocalSystem
Telephony Provides Telephony API (TAPI) support for programs that con... Manual LocalSystem
Telnet Allows a remote user to log on to the system and run console ... Manual LocalSystem
Uninterruptible Power Supply Manages an uninterruptible power supply (UPS) connected to ... Manual LocalSystem
Utility Manager Starts and configures accessibility tools from one window Manual LocalSystem
Win32sl Started Automatic LocalSystem
Windows Installer Installs, repairs and removes software according to instructio... Manual LocalSystem
Windows Management Instrumentation Provides system management information. Manual LocalSystem
Windows Management Instrumentation Driver Extensions Provides systems management information to and from drivers. Started Manual LocalSystem
Windows Time Sets the computer clock. Manual LocalSystem
Workstation Provides network connections and communications. Started Automatic LocalSystem
Start
Services
4:29 PM

***Figure 5-4. Windows 2000 Services Window***

or

- Windows NT: Select **Start>>Settings>>Control Panel>>Services>>QLview for Fibre NT Agent**. The Windows NT *Services* window displays (see figure 5-5):

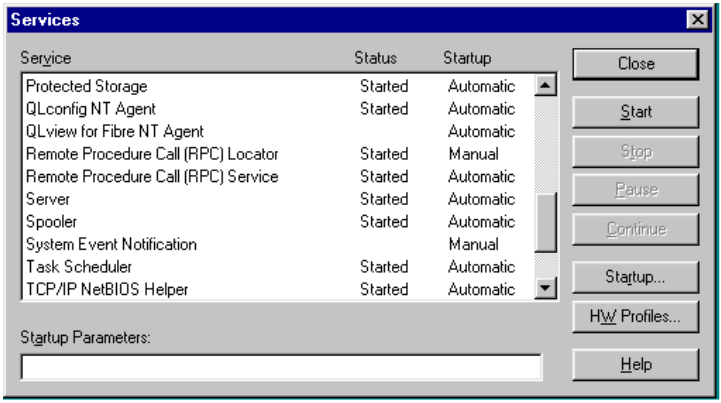


***Figure 5-5. Windows NT Services Window***

These *Services* windows display some or all of the following information:

- Service name
- Service description
- Service status: Started or left blank (if inactive)
- Start-up type: Manual or automatic
- Log On As: Local or remote system

### *5.2.7* Changing Startup Modes

When you install QLogic Management Suite (QMS) on your system, all services are installed as Automatic so that they start the next time you reboot your computer. If you want to change the startup option, you can do so from the *Services* window (see figures 5-4 and 5-5).

To change the setting, follow these steps:

1. Select one of the following:
   - ❑ Windows 2000: Select **Start>>Programs>>Administrative Tools>>Services**

     or
   - ❑ Windows NT: Select **Start>>Settings>>Control Panel>>Services**
2. Double-click on **qlfvagnt** or **QLview for Fibre NT Agent**; then change the startup type.
3. Reboot your system.

## *5.3* Getting Help with QLview for Fibre

### *5.3.1* Viewing Online Help

To access the QLview for Fibre online help, select **Options & Help>>Help Topics**. The *Help Topics* window displays.

### *5.3.2* Viewing QLview for Fibre Software Information

To view information about your QLview for Fibre software, select **Options & Help>>About QLview for Fibre**. The *About QLview for Fibre* dialog displays (see figure 5-6):

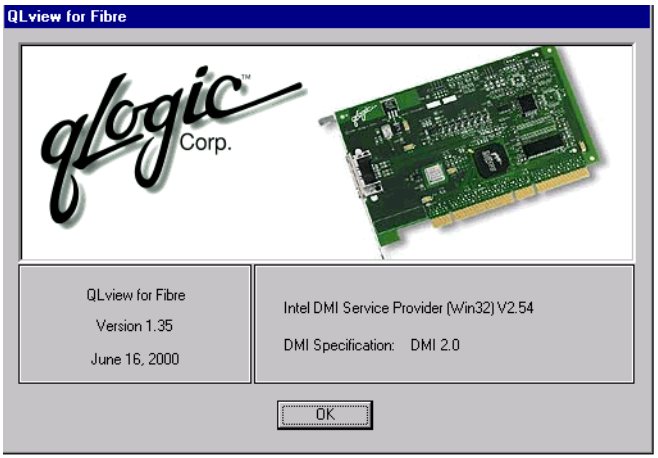


***Figure 5-6. About QLview for Fibre Dialog***

This dialog displays the following information:

- ❑ QLview for Fibre software version number
- ❑ QLview for Fibre software release date of the QLview for Fibre software
- ❑ The version number of the Service Provider
- ❑ The version number of the DMI specification that this Service Provider supports

## *5.4* Setting Up New Connections

To manage or control a QLA2xxx adapter, QLview for Fibre must first establish a DMI connection with the machine where the adapter is installed. This machine can be the local system where QLview for Fibre is running or any system on the same network as the local system.

### *5.4.1* Preparing to Add a New Connection

For a DMI connection to be successfully established, the system with which you want to connect must meet the following requirements:

- ❑ At least one QLA2xxx adapter is installed and active.
- ❑ The QLview for Fibre Agent is installed and running. You can check this in the Windows *Services* dialog by selecting one of the following:
  - ❑ Windows 2000: **Start>>Programs>>Administrative Tools>> Services>>QLview for Fibre NT Agent**

    or
  - ❑ Windows NT: **Start>>Settings>>Control Panel>>Services>> QLview for Fibre NT Agent**
- ❑ Win32sl, the DMI Service Provider, is running. You can check this in the *Services* window.

### *5.4.2*
## Adding a New Connection

To add the new connection, follow these steps:

1. Right-click the system tray **QLview for Fibre** icon; then select **New Connection** from the menu. The *Set Up New Connection* window displays (see figure 5-7):

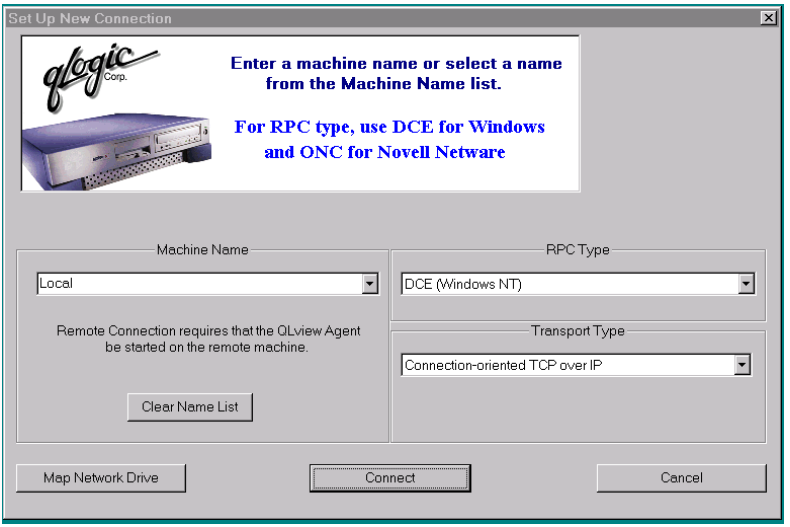
Set Up New Connection
qlogic Corp.
Enter a machine name or select a name from the Machine Name list.
For RPC type, use DCE for Windows and ONC for Novell Netware
Machine Name
Local
Remote Connection requires that the QLview Agent be started on the remote machine.
Clear Name List
RPC Type
DCE (Windows NT)
Transport Type
Connection-oriented TCP over IP
Map Network Drive
Connect
Cancel

***Figure 5-7. Set Up New Connection Window***

2. In the Machine Name field, do one of the following:
   - ❑ Select **Local** from the drop-down menu to connect to a local machine.

     or
   - ❑ Select a remote device name from the drop-down menu or type the remote machine's name in the field. You can find the system's machine name by pressing <CTRL>-<ALT>-<DEL> to open the Security window.

     or
   - ❑ Click **Clear Name List** to delete all of the machines on the list except Local. (Local cannot be deleted.)

For help in finding the correct machine name, click **Map Network Drive** to open the Windows *Map NetWork Drive* window (see figure 5-8):

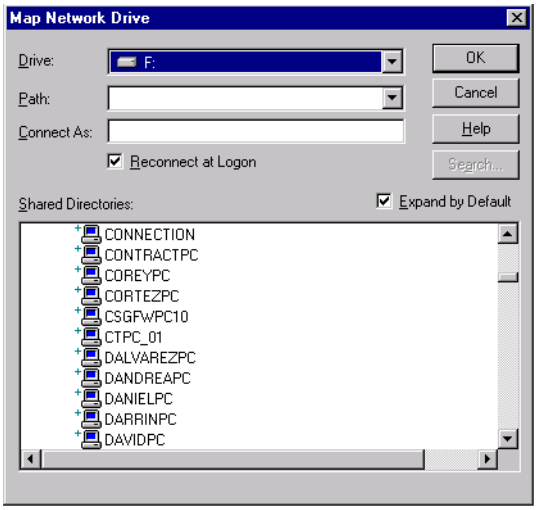


***Figure 5-8. Map Network Drive Window***

This dialog maps a logical drive to a machine on the network. It displays the names of all the connectable machines and the domains to which the machines belong. Use this dialog to view available machine names; then do the following:

a. Find the appropriate machine name.

b. Click **OK**. The *Set Up New Connection* window redisplays.

c. Type the machine name in the Machine Name field in the *Set Up New Connection* window.

d. Click **Connect**.

After the DMI connection is established to a remote machine, QLview for Fibre adds it to the Machine Name drop-down menu for future use.

To delete the names of remote machines from the Machine Name drop-down menu, do the following:

a. Click **Clear Name List** on the *Set Up New Connection* window.

b. When the confirmation dialog displays, select **Yes** to clear all the names.

3. From the RPC Type field drop-down menu, select **DCE** for Windows or **ONC** for Novell NetWare.
4. QLview for Fibre automatically selects the correct transport type for the RPC type you have selected.

   To select a different one, do the following:

   a. Click on the Transport Type field drop-down menu.

   b. Select a transport type for the DMI connection (see figure 5-9):

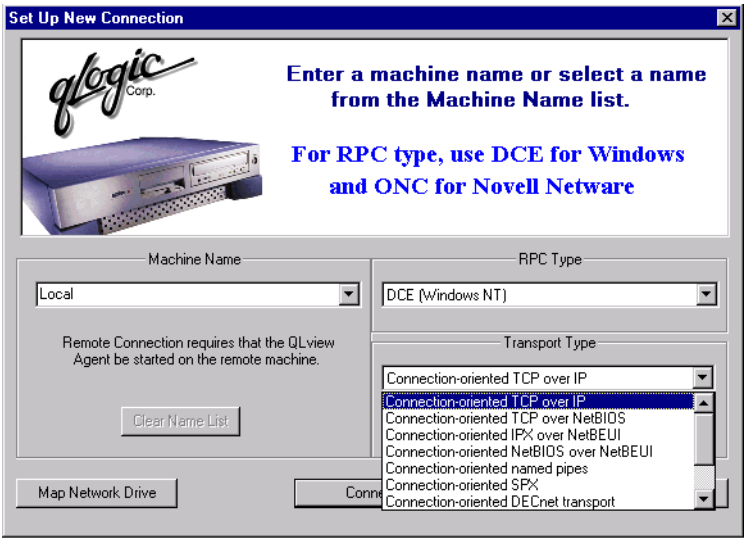
Set Up New Connection
qlogic Corp.
Enter a machine name or select a name from the Machine Name list.
For RPC type, use DCE for Windows and ONC for Novell Netware
Machine Name
Local
RPC Type
DCE (Windows NT)
Remote Connection requires that the QLview Agent be started on the remote machine.
Transport Type
Connection-oriented TCP over IP
Connection-oriented TCP over IP
Connection-oriented TCP over NetBIOS
Connection-oriented IPX over NetBEUI
Connection-oriented NetBIOS over NetBEUI
Connection-oriented named pipes
Connection-oriented SPX
Connection-oriented DECnet transport
Clear Name List
Map Network Drive

***Figure 5-9. Set Up New Connection Transport Type Drop-Down Menu***

The following transport types are available (see table 5-1):

***Table 5-1. Transport Types***

| Transport Type | Description |
|---|---|
| ncacn_ip_tcp | This is a connection-oriented TCP over an IP. |
| ncacn_nb_tcp | This is a connection-oriented TCP over NetBIOS. |
| ncacn_nb_ipx | This is a connection-oriented IPX over NetBEUI. |
| ncacn_nb_nb | This is a connection-oriented NetBIOS over NetBEUI. |
| ncacn_np | This is a connection-oriented transport named pipes. |
| ncacn_spx | This is a connection-oriented SPX. |
| ncacn_dnet_nsp | This is a connection-oriented DECnet transport. |
| ncadg_ip_udp | This is a Datagram (connectionless) UDP over an IP. |
| ncadg_ipx | This is a Datagram (connectionless IPX). |
| ncalrpc | This is a local (cross-process) procedure call. |

### *5.4.3* Disconnecting a Machine

You may want to disconnect a machine when the current machine is experiencing problems that stop DMI communication. To terminate the DMI connection between QLview for Fibre and a managed machine, and to remove the machine from the active machine list, follow these steps:

1. Do one of the following from the QLview for Fibre main window:
   - ❑ Right-click on the machine in the mapping tree, select **Disconnect from Machine** from the menu, then click **Yes**.

     or
   - ❑ Select **Machine Connection>>Disconnect from Selected Machine**, then click **Yes**.

2. The confirmation dialog displays, as in this example (see figure 5-10):

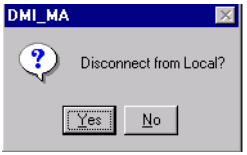


***Figure 5-10. Disconnect Machine Confirmation Dialog***

Click **Yes** to terminate the DMI link and remove the machine from the active machine list.

## *5.5* Monitoring the Connections

QLview for Fibre monitors connections and informs you of various conditions and problems through alarms and an event log. When a DMI connection is established, QLview for Fibre continuously monitors the connected machine for alarms and indications.

During the management process, if QLview for Fibre receives a DMI error message, it informs you with a dialog message. An error can occur from various causes, such as if the QLview for Fibre NT Agent has been terminated, the network link between the two machines has been broken, or the managed machine has crashed.

You can specify the kinds of events you wish to view, as well as modify event log features.

### *5.5.1* Acknowledging Alarms

When an alarm condition occurs, such as a loop down, the system tray **QLview for Fibre** icon changes from green to flashing red. The flashing icon indicates that there is at least one active alarm in the application that you need to acknowledge.

1. To find out what error condition has occurred, select **File>>Acknowledge Alarm** from the QLview for Fibre main window.

   The *Acknowledge Alarm* window displays (see figure 5-11):

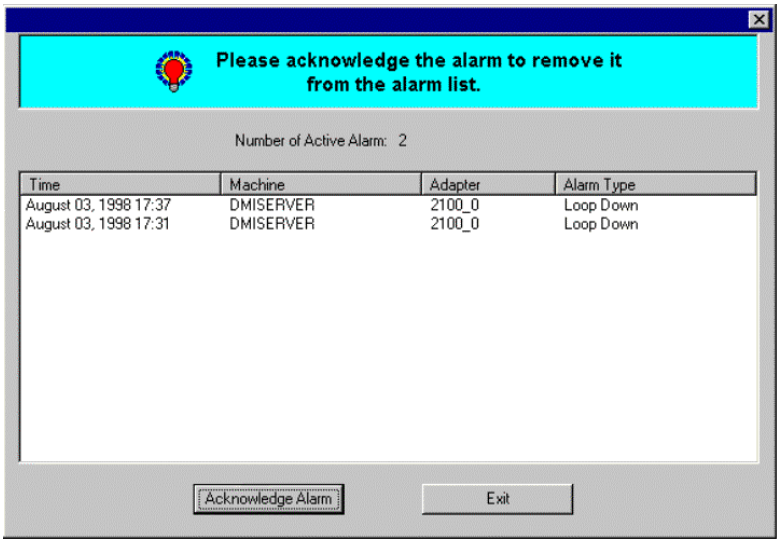


***Figure 5-11. Acknowledge Alarm Window***

2. Highlight the active alarms on the list; then click **Acknowledge Alarm**.
3. If there is more than one active alarm, you are prompted to delete all of them. Do one of the following:

   ❑ Click **Yes** to delete all active alarms.

   or

   ❑ Click **No** to acknowledge and delete only the oldest alarm in the alarm list.

   The **QLview for Fibre** system tray icon stops flashing and goes back to its normal state after you acknowledge all active alarms and the alarm list is empty.

   If the alarm list is empty and you click **Acknowledge Alarm**, a dialog displays to inform you that there is no active alarm.

### *5.5.2*
## Specifying the Polling Interval

The polling interval is the length of time that lapses between polling connected machines for alarms and indications. Once a QLA2xxx adapter's system is connected, QLview for Fibre starts polling this system for alarms and indications.

When selecting polling intervals, consider the following factors:

- ❑ The polling interval always applies to the machine you have currently selected in the QLview for Fibre main window.
- ❑ The default polling rate is 30 seconds, but you can change it using this feature.
- ❑ The polling interval must be in the range of 1 second to 3600 seconds (1 hour).
- ❑ Invalid entries are rejected and the polling interval remains unchanged.
- ❑ The faster the polling rate, the more quickly QLview for Fibre receives indications from the connected system. However, faster polling rates consume more of your system's CPU resources and slow the system.

To change the polling rate, follow these steps:

1. Select **Options & Help>>Options** from the QLview for Fibre main window. The *Options* window displays (see figure 5-12):

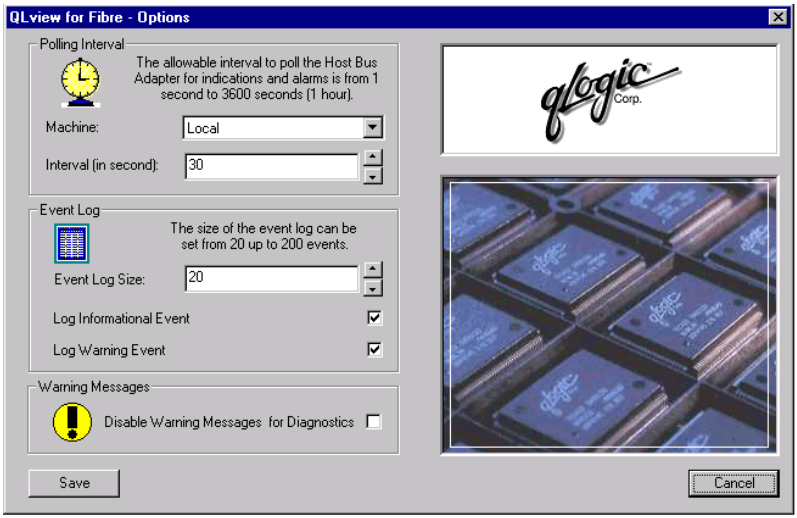


***Figure 5-12. Options Window***

   This window displays the Machine list as a reference.

2. In the Interval field, type a polling interval value or use the up and down arrows to select a value.
3. Click **Save**.

### *5.5.3* Disabling Warning Messages

You can disable warning messages that display in the *Diagnostics and Utilities* page when you click the **Loopback/Read-Write Buffer Test** button. Do the following:

1. Select **Options & Help>>Options** from the QLview for Fibre main window. The *Options* window displays (see figure 5-12).
2. To stop warning messages from displaying, select **Disable Warning Messages for Diagnostics**.
3. Click **Save**.

### *5.5.4*
## Managing Event Logs

The *Events Log* lists all alarms, warnings, and informational messages from the QLA2xxx adapters connected in your system (see section 4.4).

To view the Events Log, follow these steps:

1. Select **File>>Event Log** from the QLview for Fibre main window to display the *Events Log* (see figure 5-13):

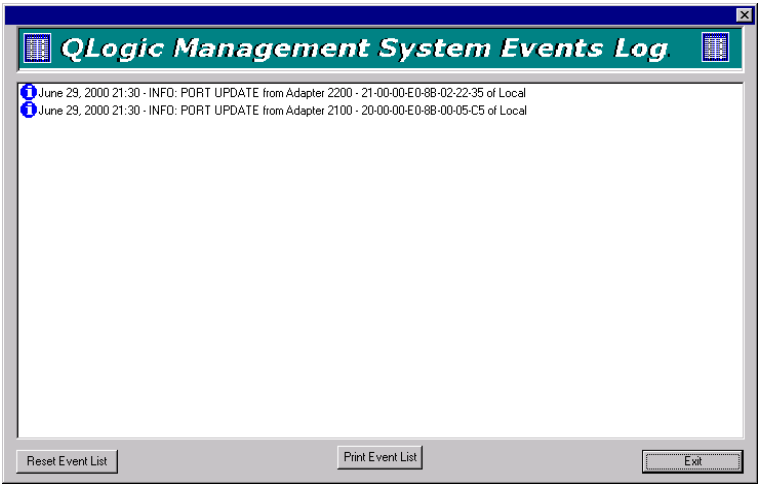
QLogic Management System Events Log
June 29, 2000 21:30 - INFO: PORT UPDATE from Adapter 2200 - 21-00-00-E0-8B-02-22-35 of Local
June 29, 2000 21:30 - INFO: PORT UPDATE from Adapter 2100 - 20-00-00-E0-8B-00-05-C5 of Local
Reset Event List
Print Event List
Exit

***Figure 5-13. Events Log***

2. Click **Exit** to return to the QLview for Fibre main window.

### *5.5.4.1*
## Printing Events Logs

To print the event list, follow these steps:

1. Click **Print Event List**.
2. The standard Windows *Print* window displays. Use this window to select standard printing options such as printer name, number of copies, and paper size; then click **OK** to print.
3. Click **Exit** on the *Events Log* to return to the QLview for Fibre main window.

### *5.5.4.2*
## Deleting Events from the Log

To delete events from the *Events Log*, click **Reset Event List** on the *Events Log*.

### *5.5.4.3*
## Specifying the Number of Events to List

The default number of events to list at any given time is 100, but the selectable range is from 20 to 200 events. To specify the number of events to list in the *Events Log*, follow these steps:

1. Select **Options & Help>>Options** from the QLview for Fibre main window. The *Options* window displays (see figure 5-14):

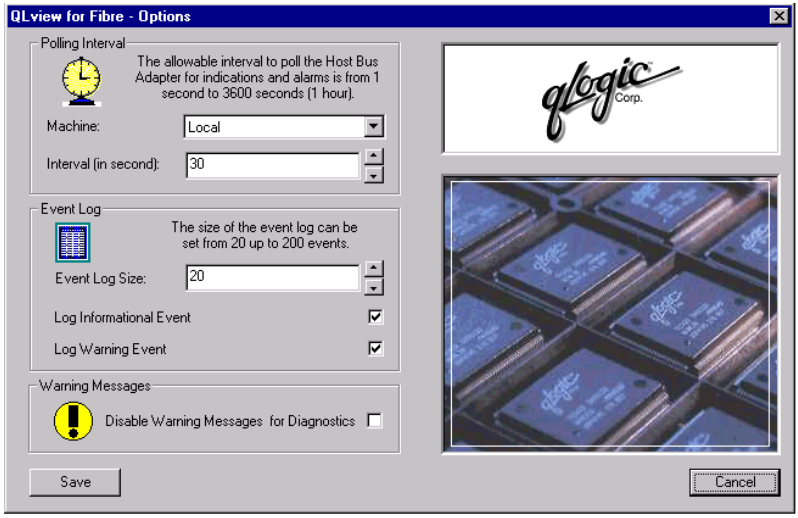


***Figure 5-14. Options Window***

2. In the Event Log Size field, type a value from 20 to 200 or use the up and down arrows to select a value.
3. Click **Save**.

### *5.5.4.4*
### Specifying Event Types

You can select the types of events to display in the *Events Log* from the *Options* window (see figure 5-14).

1. You may do any combination of the following:
   - ❑ Select **Log Informational Event** to enable logging of an informational event. Informational events are defined as loop up and port update.
   - ❑ Select **Log Warning Event** to enable logging of events that are classified as warnings. Warning events are defined as Loop Initialization Process (LIP) reset.
2. Click **Save**, then click **Cancel** to return to the QLview for Fibre main window.

## *5.6*
## Displaying Adapter Information

To view general, static information about a QLA2xxx adapter, as well as its dynamically changing statistics, follow these steps:

1. Do one of the following:
   - ❑ Right-click on a QLA2xxx adapter in the machine mapping tree in the QLview for Fibre main window, then select **Adapter's Information & Statistics** from the menu.

     or
   - ❑ Click on a QLA2xxx adapter in the machine mapping tree on the QLview for Fibre main window, then click **Information & Statistics**.

   The **Adapter's Information & Statistics** window displays. This window contains three pages: **General Information**, **Statistics**, and **Port Database**. Click on the appropriate tab to display these pages.

The *General Information & Statistics* page displays automatically (see figure 5-15):

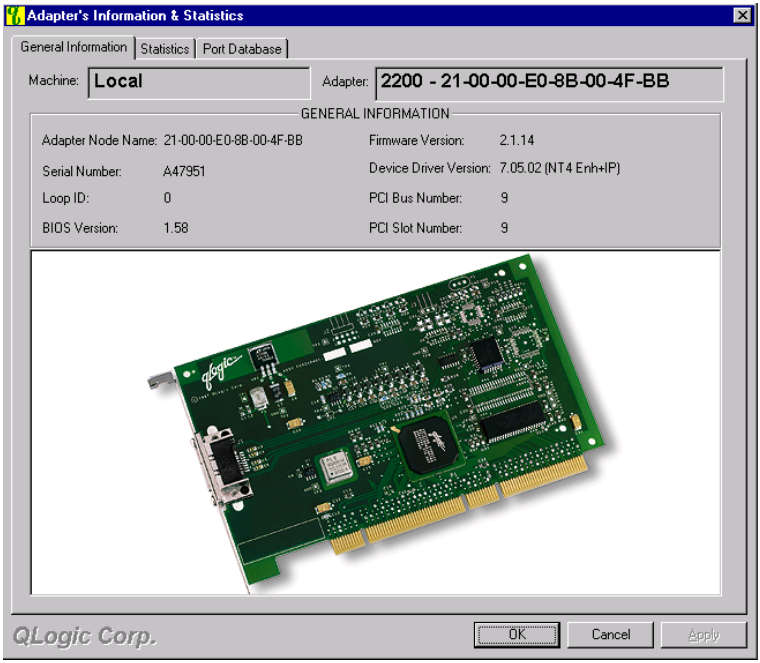


***Figure 5-15. Adapter's Information & Statistics Window***

2. Select a page by clicking the tab at the top of the page.
3. To return to the QLview for Fibre main window, click **OK** or **Cancel** at the bottom of the page.

For detailed descriptions of these pages, see section 4.

### *5.6.1*
## Obtaining QLA2xxx Adapter Information

To find QLA2xxx adapter version and location information, click the **General Information** tab on the *Adapter's Information & Statistics* window to display the *General Information* page (see figure 5-15).

### *5.6.2*
## Resetting Statistics

The *Statistics* page in the *Adapter's Information & Statistics* window displays data on events such as controller and device errors, LIP resets, I/O counts, I/Os per second, and bytes per second (see figure 5-16):

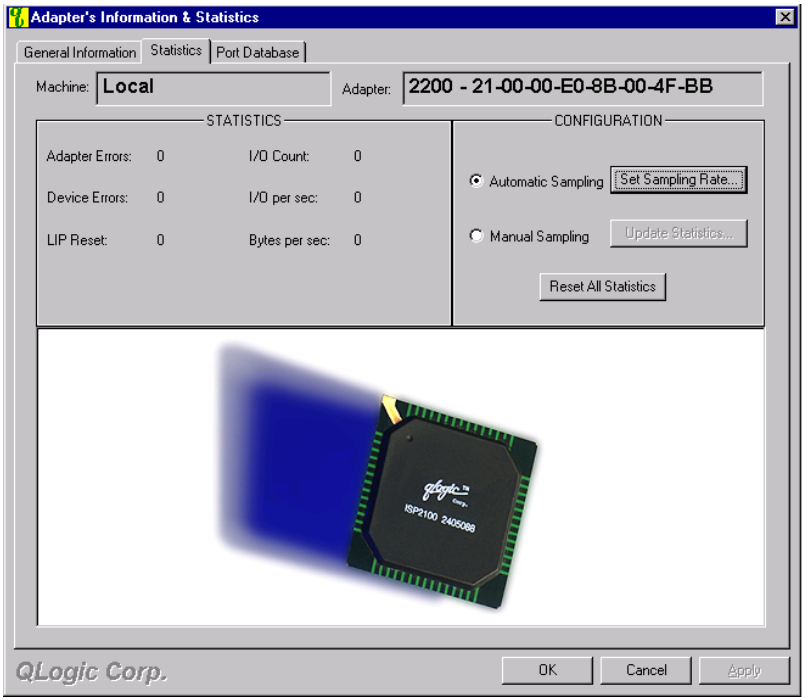


***Figure 5-16. Statistics Page***

To reset this data, follow these steps:

1. Click **Reset All Statistics**.
2. If you wish, select **Manual Sampling** mode then click **Update Statistics** to view the latest statistics.
3. Click **OK** to return to the QLview for Fibre main window.

### *5.6.3*
## Selecting Sampling Parameters

The *Statistics* page contains the Configuration section, which enables you to select the manual or automatic sampling mode, set the rate of sampling for automatic mode, and initiate a sampling in manual mode.

### *5.6.3.1*
## Selecting a Sampling Mode

To select a sampling mode, follow these steps:

1. Click the **Statistics** tab on the *Adapter's Information & Statistics* window. The *Statistics* page displays (see figure 5-16).
2. Select **Automatic Sampling** or **Manual Sampling**. The other mode is automatically deselected.
3. Click **OK**.

### *5.6.3.2*
## Selecting a Sampling Rate

The default sampling rate is every five seconds. To change the sampling rate, follow these steps:

1. From the *Statistics* page, select **Automatic Sampling** mode.
2. Click **Set Sampling Rate**.

   The *Statistics Sampling Rate* dialog displays (see figure 5-17):

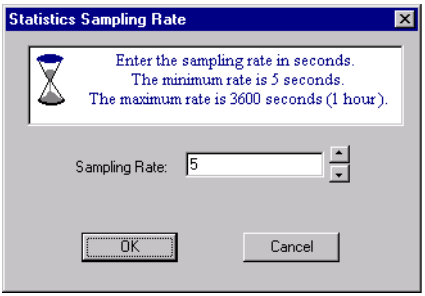


***Figure 5-17. Statistics Sampling Rate Dialog***

3. Type a value in the Sampling Rate field or use the up and down arrows to select a value. The valid range for this sampling rate is from 5 seconds to 3600 seconds.

   If you enter an out-of-range rate, a dialog displays to prompt you to enter an integer between 5 and 3600.

4. Click **OK** to make the change or **Cancel** to close the window and keep the current value.

## *5.7* Performing Diagnostics

### *5.7.1* Displaying Link Status

To view the current status of the QLA2xxx adapter and all attached drives, click the **Link Status** tab on the *Adapter's Diagnostics and Utilities* window. The *Link Status* page displays (see figure 5-18):

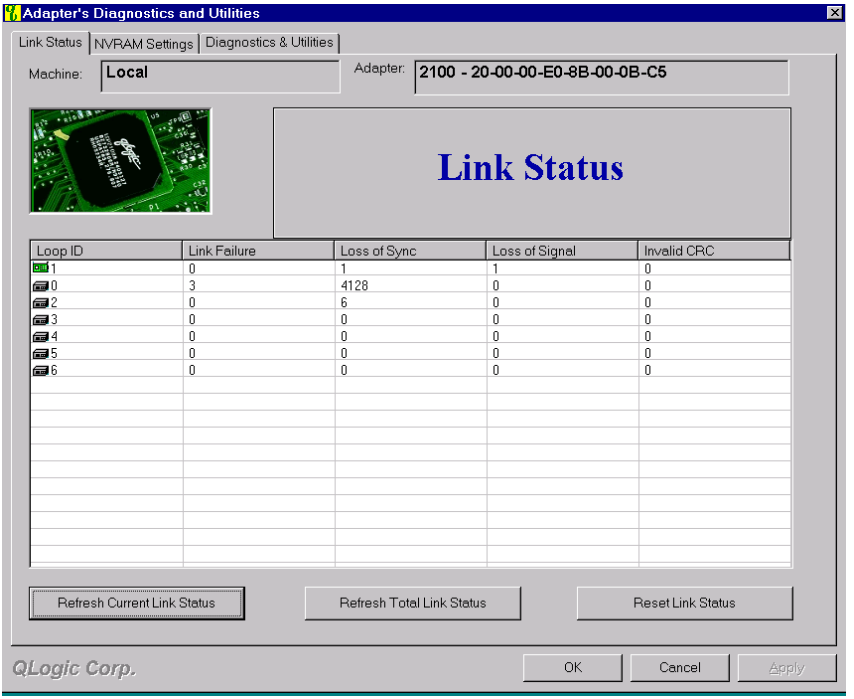


***Figure 5-18. Link Status Page***

Refer to section 4.9.1 for a detailed description of the information provided on this page.

1. To reset the link status list, click one of these buttons:
   - ❑ **Refresh Current Link Status**. Refreshes the status of the currently selected link.
   - ❑ **Refresh Total Link Status**. Refreshes the status of all listed links.
   - ❑ **Reset Link Status**. Clears the list of all links.
2. Click **OK**.
3. If you are resetting link status counters, click **Yes** in the following dialog (see figure 5-19):

***Figure 5-19. Link Status Change Confirmation Dialog***

### *5.7.2* Performing Loopback and Read/Write Buffer Tests

The Loopback and Read/Write Buffer tests are described in section 4.9.3. To perform the tests, follow these steps:

1. Open the *Adapter's Diagnostics and Utilities* window by doing one of the following:
   - ❑ Right-click on a QLA2xxx adapter in the machine mapping tree on the QLview for Fibre main window, then select **Diagnostics and Utilities** from the adapter's menu.

     or
   - ❑ Click on a QLA2xxx adapter in the machine mapping tree on the QLview for Fibre main window, then click on **Diagnostics and Utilities** on the right side of the main window.

2. Click the **Diagnostics & Utilities** tab on the *Adapter's Diagnostics and Utilities* window. The *Diagnostics & Utilities* page displays (see figure 5-20):

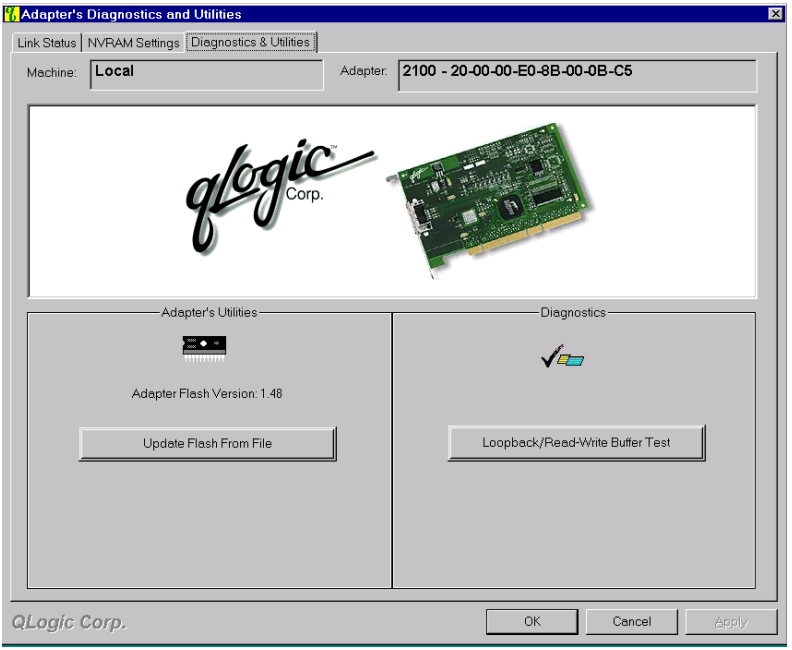


***Figure 5-20. Diagnostics & Utilities Page***

3. Click **Loopback/Read-Write Buffer Test**.

   If loopback/read-write buffer warning messages were not previously disabled (see section 5.5.3), the following displays (see figure 5-21):

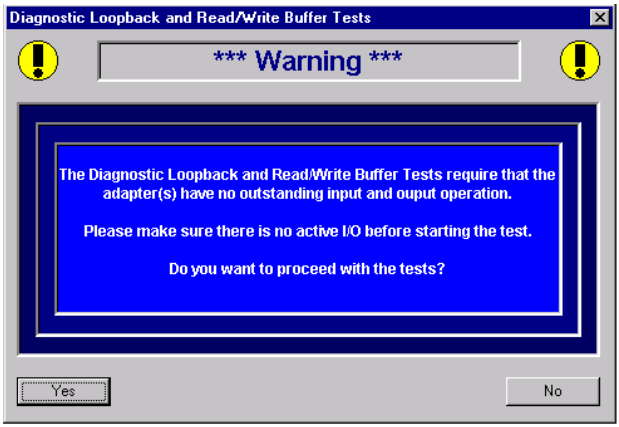
Diagnostic Loopback and Read/Write Buffer Tests
*** Warning ***
The Diagnostic Loopback and Read/Write Buffer Tests require that the adapter(s) have no outstanding input and ouput operation.
Please make sure there is no active I/O before starting the test.
Do you want to proceed with the tests?
Yes
No

***Figure 5-21. Diagnostic Loopback and Read/Write Buffer Tests Warning***

4. Read the warning; then click **Yes** when you are sure that no I/Os are active.

   The *Loopback and Read/Write Buffer Diagnostics* window displays (see figure 5-22):

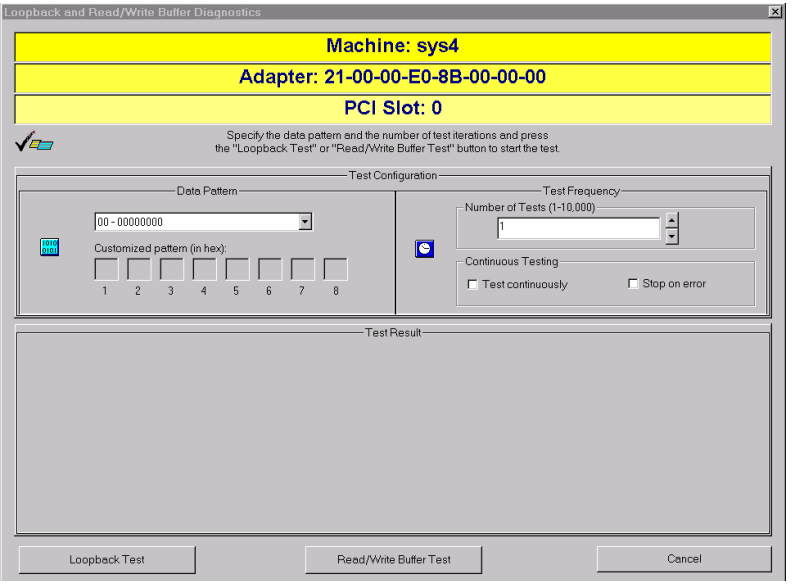


***Figure 5-22. Loopback and Read/Write Buffer Diagnostics Window***

5. In the Data Pattern field, do one of the following:

   - ❑ Select a data byte from the drop-down menu.

     or

   - ❑ Select **Customized** in the Data Pattern field to specify your own eight-byte pattern; then enter the data in hexadecimal format (0-FF) into the eight boxes in the Customized pattern (in hex) field.

6. In the Test Frequency field, set the number of tests you want to run. You can type a test number from 1 to 10,000 or use the up and down arrows to select a value.

7. In the Continuous Testing field, select one, both, or neither of the following:
   - ❑ **Continuous Testing** to have testing continue even if errors occur.
   - ❑ **Stop on Error** to halt testing when an error occurs.

8. Click **Loopback Test** or **Read/Write Buffer Test**.

   If you select continuous testing, a dialog displays while the test is running, which enables you to click **Cancel** to stop the test.

### *5.7.2.1*
## Loopback and Read/Write Buffer Test Results

The Test Result field in the *Loopback and Read/Write Buffer Diagnostics* window displays the results of a test run (see figure 5-23):

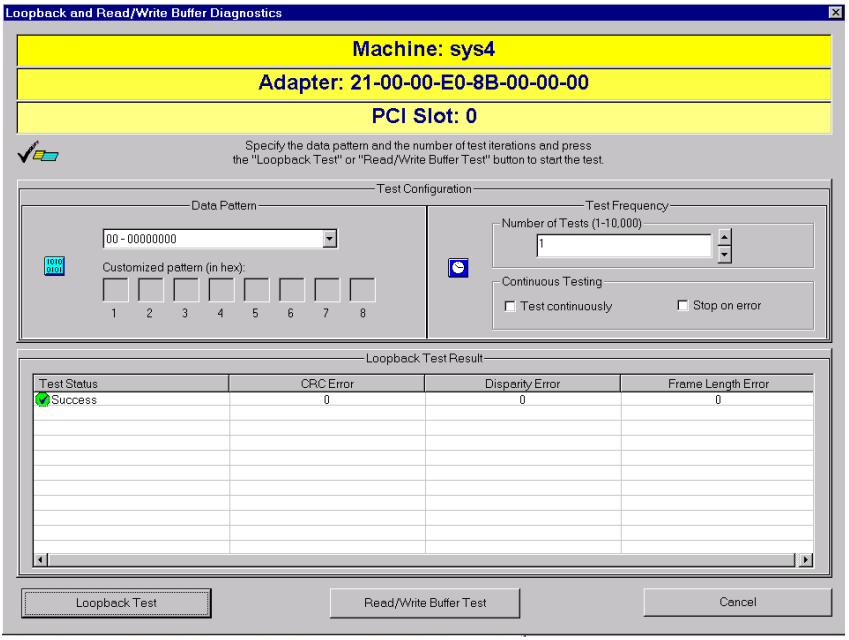


***Figure 5-23. Test Result Field***

The Test Status column indicates whether the test passed or failed. The remaining information pertains to error counters.

*5.7.2.1.1*

## Loopback Test Results

When you run a loopback test, the Test Result field displays the name of the test in the title. For example, the field name “Test Result” changes to “Loopback Test Result” when you run a loopback test, as shown in figure 5-23.

The Test Result columns indicate whether the test passed or failed, and list the number of Cyclic Redundancy Check (CRC) errors, disparity errors, and frame length errors.

Figure 5-24 shows a successful test. The Test Result field in figure 5-24 shows that the Loopback test failed:

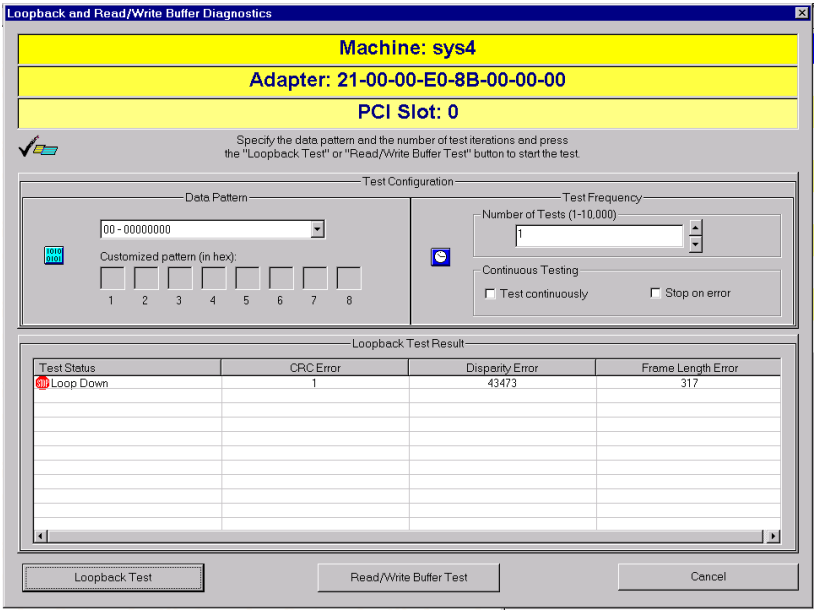


***Figure 5-24. Failed Loopback Test Result***

### *5.7.2.1.2*
## Read/Write Buffer Test Results

When you run a read/write buffer test, the Test Result field displays the name of the test in the title. For example, the field name “Test Result” changes to “Read/Write Buffer Test Result” (see figure 5-25):

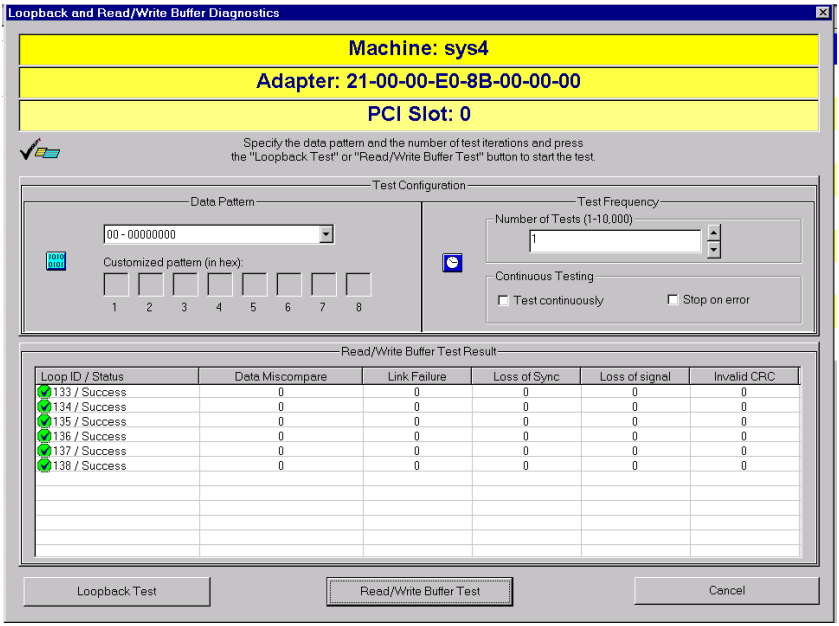
Loopback and Read/Write Buffer Diagnostics
Machine: sys4
Adapter: 21-00-00-E0-8B-00-00-00
PCI Slot: 0
Specify the data pattern and the number of test iterations and press the "Loopback Test" or "Read/Write Buffer Test" button to start the test.
Test Configuration
Data Pattern
00 - 00000000
Customized pattern (in hex):
1 2 3 4 5 6 7 8
Test Frequency
Number of Tests (1-10,000)
1
Continuous Testing
Test continuously
Stop on error
Read/Write Buffer Test Result
Loop ID / Status
Data Miscompare
Link Failure
Loss of Sync
Loss of signal
Invalid CRC
133 / Success 0 0 0 0 0
134 / Success 0 0 0 0 0
135 / Success 0 0 0 0 0
136 / Success 0 0 0 0 0
137 / Success 0 0 0 0 0
138 / Success 0 0 0 0 0
Loopback Test
Read/Write Buffer Test
Cancel

***Figure 5-25. Successful Read/Write Buffer Test Result***

For read/write buffer tests, the Test Result columns indicate loop ID and whether the test passed or failed; these columns also list the number of data discrepancies, link failures, loss of sync and signal errors, and invalid CRCs, as shown in figure 5-26:

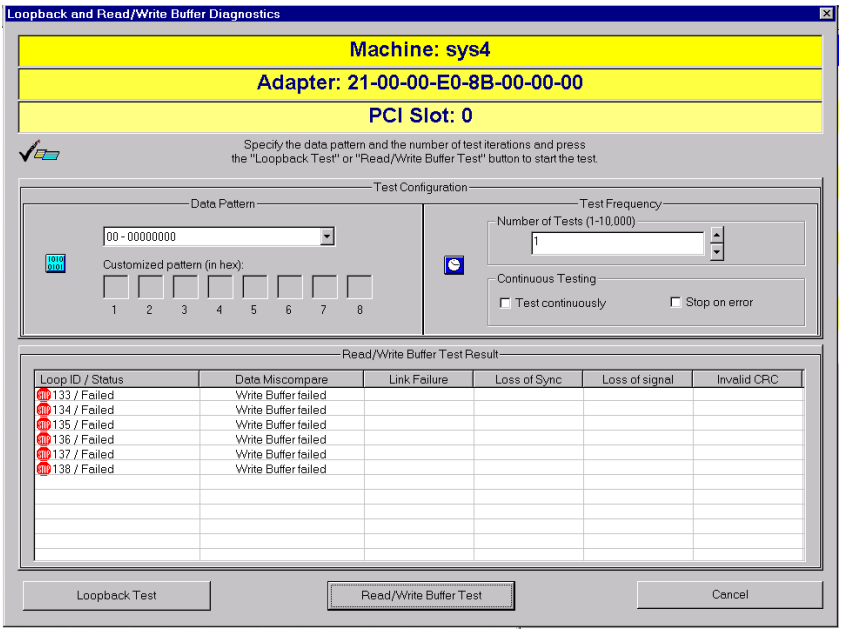
Loopback and Read/Write Buffer Diagnostics
Machine: sys4
Adapter: 21-00-00-E0-8B-00-00-00
PCI Slot: 0
Specify the data pattern and the number of test iterations and press the "Loopback Test" or "Read/Write Buffer Test" button to start the test.
Test Configuration
Data Pattern
00 - 00000000
Customized pattern (in hex):
1 2 3 4 5 6 7 8
Test Frequency
Number of Tests (1-10,000)
1
Continuous Testing
Test continuously
Stop on error
Read/Write Buffer Test Result
Loop ID / Status
Data Miscompare
Link Failure
Loss of Sync
Loss of signal
Invalid CRC
133 / Failed Write Buffer failed
134 / Failed Write Buffer failed
135 / Failed Write Buffer failed
136 / Failed Write Buffer failed
137 / Failed Write Buffer failed
138 / Failed Write Buffer failed
Loopback Test
Read/Write Buffer Test
Cancel

***Figure 5-26. Failed Read/Write Buffer Test Result***

## *5.8* Updating the System

### *5.8.1* Flash BIOS

You can update the flash BIOS on a Windows NT/2000 system if these conditions are met:

- ❑ You select the **Enable NVRAM Parameters Update** option under QLview for Fibre Security (see section 5.2.5.1).
- ❑ You provide the correct password and it is authenticated by the QLview for Fibre Security Agent.

You can update the flash BIOS on a NetWare system under the following conditions:

- ❑ You entered a password in the security application (see section 5.2.5.2).
- ❑ You provide the correct password and it is authenticated by QLview for Fibre.

To update the flash BIOS, follow these steps:

1. Click the **Diagnostics & Utilities** tab in the *Adapter's Diagnostics and Utilities* window (see figure 5-20).
2. Click **Update Flash From File**.
3. Enter your password at the prompt (see figure 5-27).

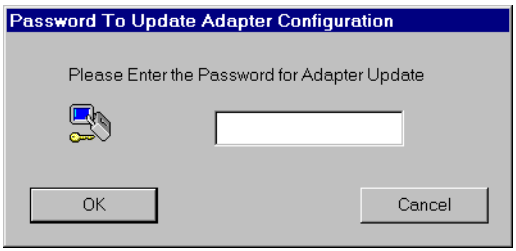


***Figure 5-27. Flash BIOS Password Dialog***

4. If the password provided is correct, QLview for Fibre prompts you for the file name that contains the new flash BIOS. You can obtain this file from the QLogic web site or technical service personnel. It typically ends with .BIN, such as, QL22ROM.BIN.

5. After you enter a valid flash file, the application displays a warning message and informs you that the new flash will not take effect until the system is rebooted (see figure 5-28).

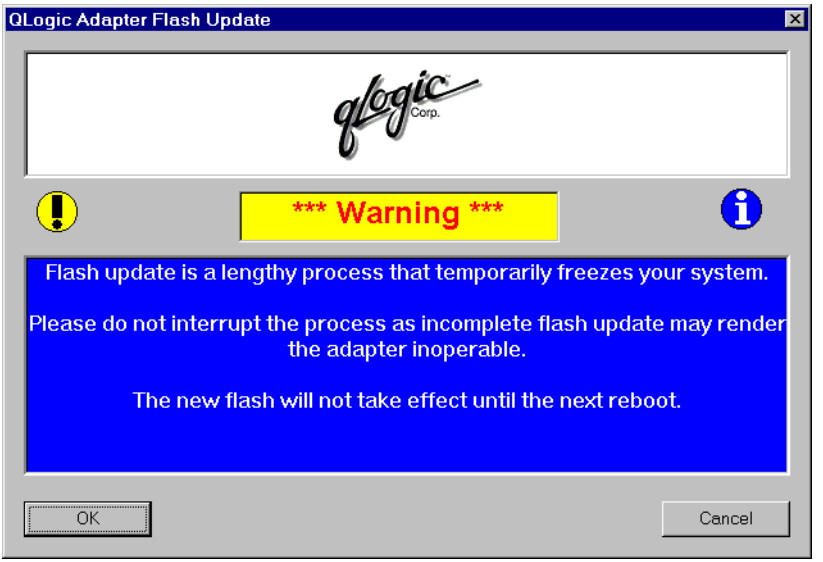
QLogic Adapter Flash Update
qlogic Corp.
*** Warning ***
Flash update is a lengthy process that temporarily freezes your system.
Please do not interrupt the process as incomplete flash update may render the adapter inoperable.
The new flash will not take effect until the next reboot.
OK
Cancel

***Figure 5-28. Flash BIOS Update Warning Message***

Do one of the following:

- ❑ Click **OK** to proceed with the update.

  or

- ❑ Click **Cancel** to abort the update.

If you click **OK**, QLview for Fibre verifies the contents of the new file for errors or incorrect formatting. If the file is correct, QLview for Fibre compares the version of the file with the QLA2xxx adapter's flash version. If the QLA2xxx adapter's version is the same or newer than the file's, QLview for Fibre prompts you to verify that you still want to update the flash.

During the update process, the application displays a wait message. If the update fails for some reason, an error message displays (for example, see figure 5-29).

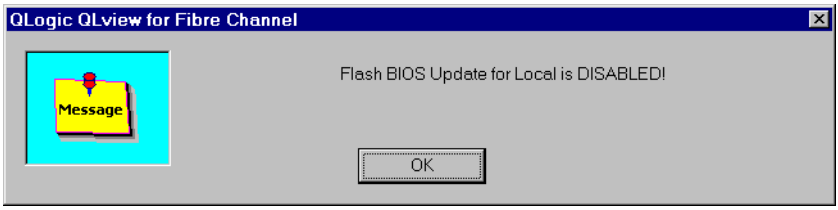


***Figure 5-29. Flash BIOS Update Error Message***

If the update is successful, the following message displays (see figure 5-30).

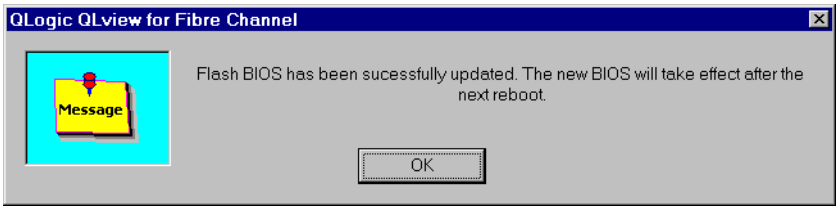
QLogic QLview for Fibre Channel
Message
Flash BIOS has been sucessfully updated. The new BIOS will take effect after the next reboot.
OK

***Figure 5-30. Flash BIOS Update Successful Message***

### *5.8.2* NVRAM

#### *5.8.2.1* Changing QLA2xxx Adapter NVRAM Settings

You can change NVRAM parameters on a Windows NT/2000 system if these conditions are met:

- ❑ You select the **Enable NVRAM Parameters Update** option under QLview for Fibre Security (see section 5.2.5.1).
- ❑ You provide the correct password and it is authenticated by the QLview for Fibre Security Agent.

You can change these parameters on a NetWare system under the following conditions:

- ❑ You entered a password in the security application (see section 5.2.5.2).
- ❑ You provide the correct password and it is authenticated by QLview for Fibre.

***CAUTION!*** Changing NVRAM settings incorrectly can cause serious damage to your system. If in doubt, always consult your systems expert before changing any NVRAM settings.

To change the settings, follow these steps:

1. From the *Adapter's Diagnostics and Utilities* window, click the **NVRAM Settings** tab. The *NVRAM Settings* page displays (see figure 5-31):

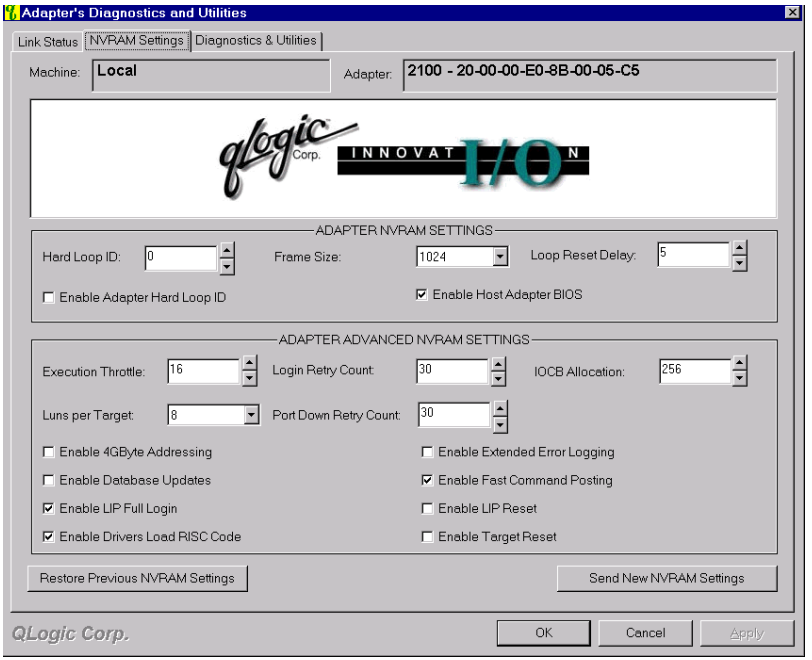


***Figure 5-31. NVRAM Settings Page***

If the **Enable NVRAM Parameters Update** option is enabled in the *Security* application, this page displays the QLA2xxx adapter's parameters that are saved in its NVRAM. If this option is not enabled, the fields are grayed out.

2. In the Adapter NVRAM Settings area, specify the following parameters:
   - **Hard Loop ID**. This is the ID used by the adapter if the Enable Adapter Hard Loop ID setting is enabled.
   - **Enable Adapter Hard Loop ID**. If this setting is enabled, the adapter uses the ID specified in the Hard Loop ID setting.
   - **Frame Size**. This setting specifies the maximum frame length supported by the adapter. The valid frame sizes are: 512, 1024, and 2048.
   - **Enable Host Adapter BIOS**. When this setting is disabled, the ROM BIOS on the QLA2xxx adapter is disabled, freeing space in the system's upper memory. Do not disable this setting if you are booting from a Fibre Channel disk drive attached to the QLA2xxx adapter.
   - **Loop Reset Delay**. After resetting the loop, the firmware refrains from initiating any loop activity for the number of seconds specified in this setting. The valid delay is from 5 to 15.

3. In the Adapter Advanced NVRAM Settings area, specify the following parameters:
   - **Execution Throttle**. This setting specifies the maximum number of commands executing on any one port. When a port's execution throttle is reached, no new commands are executed until the current command finishes executing. The valid options for this setting are: 1, 4, 8, 16, 32, 64, 128, and 255. They can be selected from the drop-down menu.
   - **LUNS per Target**. This setting specifies the number of logical unit numbers (LUNs) per target. Multiple LUN support is typical for redundant array of independent disk (RAID) boxes that use LUNs to map drives. The valid options for this setting are: 0, 8, 16, 32, 64, 128, and 256. If you do not need multiple LUN support, set LUNS per Target to 0.
   - **Enable 4Gbyte Addressing**. This setting notifies the adapter if the system has more than 4 gigabytes of memory.
   - **Enable Database Updates**. This setting is used by the adapter's driver to save the loop configuration information in the flash (EEPROM) when the system is powered down.
   - **Enable LIP Full Login**. When this setting is enabled, the adapter logs in to all ports after a LIP.

- **Enable Drivers Load RISC Code**. When this setting is enabled, the host adapter uses the RISC firmware that is embedded in the adapter's driver. If this setting is disabled, the adapter's driver loads the latest version of RISC firmware found on the system.

  ***NOTE:*** The driver being loaded must support this setting. If the driver does not support this setting, the result is the same as disabled regardless of the setting. Leaving this option enabled assures support of the software driver and RISC firmware.

- **Login Retry Count**. This setting specifies the number of retries the adapter uses during a login. This count can be a value from 0 to 255.
- **Port Down Retry Count**. This setting specifies the number of times the adapter's software retries a command to a port returning port down status. Valid range is from 0 to 255.
- **Enable Extended Error Logging**. This setting provides additional error and debug information to the operating system.
- **Enable Fast Command Posting**. When this setting is enabled, command execution time is decreased by minimizing the number of interrupts.
- **Enable LIP Reset**. This setting determines the type of LIP reset that is used when the operating system initiates a bus reset routine. When this setting is enabled, the adapter's driver initiates a global LIP reset to clear the target drive reservations. When this is disabled, the driver initiates a global LIP reset with full login.
- **Enable Target Reset**. When this setting is enabled, the adapter's driver issues a target reset to all devices on the loop during a SCSI bus reset function call.
- **IOCB Allocation**. This setting specifies the maximum number of buffers from the firmware buffer pool that are allocated to any one port. Valid range is from 1 to 512. If this setting is enabled, the adapter uses the ID specified in the Hard Loop ID setting.

4. Do one of the following:
   - ❑ If you do not want to make any change or to send the changes already made, click **OK** or **Cancel**.

     or
   - ❑ After making the desired changes to the NVRAM parameters, click **Send New Settings** to send the new settings to the adapter.

     or
   - ❑ To restore all parameters to the settings when QLview for Fibre was first executed, click **Restore Previous NVRAM Settings**.
5. If you click **Send New NVRAM Settings** without making any changes, the following dialog displays (see figure 5-32):

***Figure 5-32. NVRAM No New Settings Message***

Click **OK**.

6. If you click **Send New NVRAM Settings** and have at least one parameter change, QLview for Fibre displays a warning message (see figure 5-33):

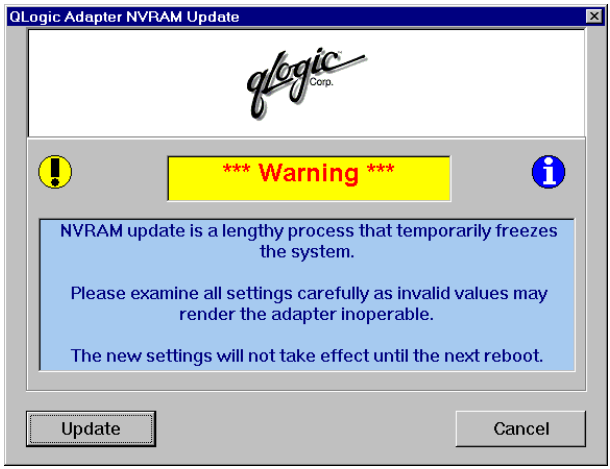
QLogic Adapter NVRAM Update
qlogic Corp.
*** Warning ***
NVRAM update is a lengthy process that temporarily freezes the system.
Please examine all settings carefully as invalid values may render the adapter inoperable.
The new settings will not take effect until the next reboot.
Update
Cancel

***Figure 5-33. NVRAM New Settings Warning Message***

Do one of the following:

- ❑ Click **Update** to proceed with the update.

  or

- ❑ Click **Cancel** to abort the update.

After your confirmation for updating NVRAM parameters, QLview for Fibre verifies that the Security application on the adapter's system allows an NVRAM update.

If the QLA2xxx adapter's system does not allow an NVRAM update, the following message displays (see figure 5-34):

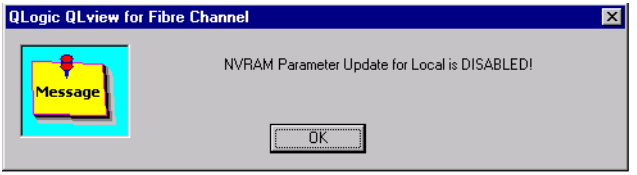


***Figure 5-34. NVRAM Parameter Update Disabled Dialog***

If you click **Cancel** to abort the update process or if the update process fails because of invalid passwords or errors reported from the QLA2xxx adapter's system, the original NVRAM settings are restored and displayed on the window.

7. Do one of the following:

   - ❑ Enter your password in the following dialog (see figure 5-35); then click **OK**:

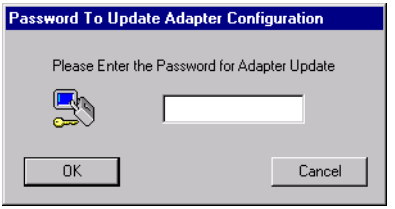


***Figure 5-35. NVRAM Password Dialog***

If the password you entered matches the QLView for Fibre Security NVRAM Password Setting on the QLA2xxx adapter's system, the new NVRAM settings are forwarded to the adapter's system for updating.

If the password you entered does not match, a dialog displays telling you that the wrong password has been entered.

Click **OK**; then type the correct password. After three incorrect passwords, QLview for Fibre displays an error dialog, aborts the NVRAM update, and restores the original settings.

or

- ❑ Press **Cancel** to abort the NVRAM update.

### *5.8.2.2*
### Restoring NVRAM Settings

If you change the NVRAM settings, you can restore them to their original values by clicking **Restore Previous NVRAM Settings**.

If there is no difference between the original and the current NVRAM settings, QLview for Fibre displays the message "No NVRAM parameter has been modified!"

If you have changed at least one NVRAM setting from its original value and sent to NVRAM by clicking **Send New NVRAM Settings**, QLview for Fibre prompts you to confirm the reset.

Do one of the following:

- ❑ Click **Yes** to reset the defaults.

  or

- ❑ Click **No** to keep the current settings.

## *5.9*
## Removing QLview for Fibre

To uninstall QLview for Fibre, follow these steps:

1. Select **Start>>Programs>>QLogic Management Suite>>QLview for Fibre>>unInstall**.
2. Click **Yes** at the prompt.
3. Reboot the system.

***NOTE:*** Be sure to stop the QLview for Fibre Agent before you uninstall the QLview for Fibre application.

# *Appendix A*
# Frequently Asked Questions

Table A-1 lists some frequently asked questions (FAQs) about the QLogic Management Suite (QMS).

***Table A-1. Frequently Asked Questions***

| Question | Answer |
|---|---|
| *What is the relationship between QMS and RAID software?* | QMS and RAID software are complementary parts of SAN software. QMS deals with the adapter board (QLA2xxx); RAID deals with drives. The failover capabilities of QMS are separate and complementary to the failover capabilities of RAID. |
| *With which QLogic adapter boards does QMS work?* | QMS supports the entire QLogic family of Fibre Channel boards (see section 2.4). Future QLogic Fibre Channel products will also be supported. QMS does not support SCSI products or Fibre Channel products from other manufacturers. |
| *What CPU architectures does QMS support?* | QMS supports both simple (single processor) and complex (two-way and four-way) processors. |
| *Do I need QMS for my QLA2xxx adapter board to work?* | No.<br>In a Windows NT/Windows 2000 system, the QLA2xxx adapters require only a miniport driver for basic functionality. The optional QLdirect adjunct driver provides higher performance and failover capability. The optional QL2200IP driver adds IP protocol capability. The QLconfig, QLview, and QLconfig IP utilities provide setup and management of the drivers and boards.<br>In a NetWare server, the QLA2xxx adapters require a Host Adapter Module (HAM) driver for the QLA2xxx adapter and a Custom Device Module (CDM) driver for each type of storage device attached to the QLA2xxx adapter. |
| *What is DMI?* | DMI stands for Desktop Management Interface, a standardized management framework created by the Desktop Management Task Force (DMTF). |
| *How can I tell if DMI is installed in my system?* | In a Windows NT/Windows 2000 system, execute the “Services” applet in the Control Panel and look for the service called “Win32sl”. |

***Table A-1. Frequently Asked Questions (Continued)***

| Question | Answer |
|---|---|
| *What is an RPC type?* | RPC stands for Remote Procedure Call, a programming technique that provides the ability to call procedures outside of an application's current address space. In QMS, Distributed Computing Environment (DCE) is the RPC type used for Windows NT/Windows 2000 and Open Network Computing (ONC) is used for Novell NetWare. |
| *What is a transport type and which one should I use?* | Transport type is the network protocol used by RPC. Examples of transport types are TCP and UDP Internet protocols. Use the one that is installed on your system. |
| *I try to set up a connection to a machine but it fails. What should I do?* | Check the following items:<br>❑ The QLview/QLconfig agent is installed and started on the remote machine.<br>❑ The network connection between the local and remote machine is functioning (use a network tool such as PING to check the connection).<br>❑ The correct RPC type is selected.<br>❑ The correct transport type is selected.<br>❑ For QLconfig, the correct password is provided. |
| *Where can I get the DMI error codes?* | From the Intel DMI 2.0 Software Development Kit (SDK), which was provided by Intel originally and now is supported by Smart Technology Enablers (http://www.enablers.com). |
| *The QLogic icon in the system tray is flashing; what happened?* | There are active alarms from the adapters that need to be acknowledged. |
| *What is a loop map and why I do not always get a full list?* | A loop map shows the physical connection of an arbitrated loop. It is not valid in a fabric environment. |
| *What is link status and what does it tell me?* | Link status is a list of the Fibre Channel loop port's error counts from the Read Link Status (RLS) extended link service. It gives the Fibre Channel link diagnostic of the port. |
| *What is the difference between a loopback test and a read/write buffer test?* | A loopback test is a diagnostic tool that is internal to the QLogic QLA2xxx adapter's firmware. A read/write buffer test consists of SCSI commands sent to a SCSI or Fibre Channel target. |
| *Which protocols are supported in NetWare?* | TCP/IP and IPX/SPX are supported. |
| *Why can't I connect to my Novell NetWare server with TCP/IP using my server name?* | Due to a limitation of the DMI services for NetWare, the IP address must be used instead of the server name. |

# *Appendix B*
# Glossary

This section describes common hardware, software, SCSI, and Fibre Channel terms that are used in the QMS documentation.

| | |
|---|---|
| *Adapter* | An adapter is the board that interfaces between the host system and disk. Adapter is synonymous with *host adapter*, *adapter board*, and *Host Bus Adapter (HBA)*. In the QMS documentation, the term *QLA2xxx* adapter is used. |
| *AL_PA* | AL_PA stands for Arbitrated Loop_Physical Address. This is a low level address on the Fibre Channel loop. |
| *Arbitrated loop* | An arbitrated loop is a *non-point to point* circular topology where two or more ports can be interconnected, but only two ports can communicate at one time. All communication is *passed* through all ports connected onto the loop. |
| *Cluster* | A cluster is multiple servers linked together sharing all resources to deliver high-availability/high-performance computing. |
| *CRC* | CRC stands for Cyclic Redundancy Check. CRC is the error detection technique used by most communication protocols including Ethernet, Ultra DMA (UDMA), Fibre Distributed Data Interface (FDDI), and Fibre Channel. CRC is more powerful than simple parity checking. |
| *DCE* | DCE stands for Distributed Computing Environment, a remote procedure call developed by the Open Software Foundation (OSF). |
| *DMI* | DMI stands for Desktop Management Interface. DMI is the industry standard for asset tracking and system management from the Desktop Management Task Force (DMTF). At the time of publication, the DMI revision level is 2.0. |

*Driver*

Driver refers to software that interfaces between the file system and a physical data storage device or network media.

The level structure for Windows NT/Windows 2000 drivers is as follows:

- *Class Driver.* This is the highest driver level. There is a separate class for disk, Ethernet, etc. This level handles all generic aspects of operations for that class.
- *Port Driver.* This is the middle driver level, which handles aspects of the operation specific to the port type; for example, there is a port driver for SCSI.
- *Miniport Driver.* This is the lowest driver level and device specific. This level is usually supplied by the manufacturer as a companion to a physical device.
- *Monolithic Driver.* This level combines the functions of different driver levels in the same driver to increase performance.
- A*djunct Driver.* This level works along side a driver at the same level to increase performance.

In NetWare, the required drivers include:

- *Host Adapter Module (HAM)*. HAM is the driver component associated with the host adapter hardware. It provides the functionality to route requests to the bus where a specified device is attached.
- *Custom Device Module (CDM)*. CDM is the drive component associated with storage devices. It provides the functionality to build device-specific commands from I/O messages received from NetWare's Media Manager.

*Fabric*

A fabric consists of cross-connected Fibre Channel devices and switches.

*Fabric switch*

A fabric switch connects multiple devices from independent Fibre Channel-Arbitrated Loops (FC-ALs) and point-to-point topologies into a fabric.

*Failover path*

The failover path software feature ensures data availability and system reliability by assigning alternate pathing and automatic adapter failover for device resources. This is a feature in the High Availability version of QLconfig.

*GUI*

GUI stands for Graphical User Interface. GUI is a style of system control based on pictures and diagrams instead of text commands.

| | |
|---|---|
| *IOCB* | IOCB stands for I/O Control Block. An IOCB is a command structure in QLogic ISP architecture. |
| *IP* | IP stands for Internet Protocol, a method and convention for sending a single packet of data through a network, combined with Transmission Control Protocol (TCP), as the basis of most intranet and Internet communication. IP is the lower connectionless layer that transmits a single packet of data to an address that uniquely identifies the receiver. TCP is the upper connection-oriented layer that disassembles the message into packets on the sending end and reassembles the packets (in the correct order) on the receiving end. IP can be used on Fibre Channel to send messages around a network, assuming that the endpoints support IP. |
| *IPX/SPX* | IPX/SPX stands for Internetwork Packet eXchange/ Sequenced Packet eXchange. These are Netware communications protocols. IPX traffic does not travel on Fibre Channel. |
| *LIP* | LIP stands for Loop Initialization Process. LIP is the initialization process in an arbitrated loop that occurs when the loop is powered up or a new device is added. One function of a LIP is to assign addresses. All data transmission on the loop is suspended during a LIP. |
| *Loopback* | Loopback is a diagnostic tool where data is transmitted and received by the QLA2xxx adapter. |
| *LUN* | LUN stands for Logical Unit Number, the small integer handle that identifies a portion of disk storage. A LUN may consist of a single physical disk or many physical disks. A physical disk may be broken into multiple LUNs. |
| *LUN masking* | LUN masking is a software feature that assigns LUNs to specific servers or hides LUNs from specific servers for maximum access and availability control. This is a feature in QLconfig. |
| *Media* | Media are carriers of information. Fibre Channel supports several different physical media: copper, multimode optical, and single-mode optical, which differ mainly in the maximum cable length. All Fibre Channel protocols are supported on all media. |

*Node name* — See WorldWide Name (WWN).

*NVRAM* — NVRAM stands for NonVolatile Random Access Memory. Small amounts of NVRAM save configuration parameters. Values are changed with a configuration utility and are retained when power is removed.

*ONC* — ONC stands for Open Network Computing, a remote procedure call developed by Sun Microsystems.

*Path* — A path to a device is a combination of a QLA2xxx adapter and a target port. Note that this is distinct from any internal paths within the fabric network. A fabric network appears to the operating system as an opaque network between the host bus adapter (initiator) and the target port.

Since a path is a combination of a host bus adapter and a target port, a path is distinct from another path if it accessed through a different host bus adapter, and/or it is accessing a different target port. Consequently, when switching from one path to another, the driver might be selecting a different QLA2xxx adapter (initiator), a different target port, or both. This will make a difference to the driver when selecting the proper method of failover notification. It can make a difference to the target device, which might have to take different actions when receiving retries of the request from another initiator or on a different port.

*Point to point* — Two Fibre Channel nodes directly connected (non-loop).

*Port* — Ports are access points in a device where a link attaches. There are four types of ports, as follows:

- ❑ *N_Port* is a Fibre Channel device port that supports point-to-point topology.
- ❑ *NL_Port* is a Fibre Channel device port that supports loop topology.
- ❑ *F_Port* is a port in a fabric where an N_Port may attach.
- ❑ *FL_Port* is a port in a fabric where an NL_Port may attach.

*Port name* — A port name is the unique name of a port on a Fibre Channel device. A WorldWide Name (WWN) may have several port names associated with it (one port name for each port).

*Protocol* — A protocol is a convention for data transmission that defines timing, control, format, and data representation. SCSI, IP, and VI are protocols.

*QMS* — QMS stands for QLogic Management Suite.

| | |
|---|---|
| *RAID* | RAID stands for Redundant Array of Independent Disks, which is a set of methods for storing data on multiple disks. Striping increases logical capacity. Mirroring increases performance and reliability. Various parity schemes increase reliability. RAID schemes can be implemented in hardware or software. |
| *RPC* | RPC stands for Remote Procedure Call. |
| *SAN* | SAN stands for Storage Area Network, which consists of multiple storage units and servers connected by networking topology. |
| *SCSI* | SCSI stands for Small Computer System Interface. The original SCSI specification was a hardware bus specification and a packet-oriented protocol specification for communicating on that bus. SCSI over Fibre Channel uses the packet-oriented protocol to communicate with storage devices on the Fibre Channel. |
| *SP* | SP stands for Service Provider. |
| *SPX* | See IPX. |
| *Static load balancing* | Static load balancing is a software feature that improves system performance by balancing device access between multiple QLA2xxx adapters for maximum resource efficiency. This is a feature in QLconfig. |
| *Target device* | A target device is a storage device that is uniquely identified by a WorldWide Name (WWN) and offers block disk storage for one or more LUNs through one or more target ports. |
| *Target port* | A target port is a Fibre Channel target that is uniquely identified by a worldwide port name and provides an access into the target device. As long as a device has only one port, the worldwide port name can be the worldwide node name, but it is not necessary. Many manufacturers make the worldwide node name and the worldwide port names similar to each other (the same number with a couple of bits changed), but it is not necessary. |
| *TCP* | TCP stands for Transmission Control Protocol, a network transport layered combined with IP. |

| | |
|---|---|
| *UDP* | UDP stands for User Datagram Protocol, a network transport layered on IP. |
| *WWN* | WWN stands for WorldWide Name and is also known as the node name. A WWN uniquely identifies a Fibre Channel device. The different ports on a Fibre Channel device will have the same node name but different port names. |

# *Appendix C*
# Contacting QLogic

For product information, our latest drivers, and links for technical assistance, please visit QLogic's web site at: http://www.qlogic.com.

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